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ABSTRACT

In addition to a foreword by the executive director of the International Council report of the 1973 ICET World Assembly is composed of the texts of 11 speeches given at those proceedings. The speeches are grouped under four headings: "The Role of Teacher Education in Contemporary Society," "The Relevance of Formal and Non-Formal Strategies for the Renewal of Teacher Education," "The Application of Technology to the Educational Process," and "The Determination of Policy in Teacher Education," Appended are lists of the participants, the observers, and the program participants. (JA)

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TEACHER EDUCATION 1973

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NATIONAL AND COMMUNITY NEEDS: THE CHALLENGE FOR TEACHER EDUCATION

International Perspectives
on
Theory and Practice

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NATIONAL AND COMMUNITY NEEDS: THE CHALLENGE FOR TEACHER EDUCATION

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Foreword

It is clearly understood that neither the *practices* nor the *theories* related to education personnel preparation and renewal can be improved without constant reexamination and continuing reevaluation by those who shape educational policy. One of the most successful forums for such examination and evaluation is the World Assembly of the International Council on Education for Teaching. The kind of successful interaction necessary to promote such purposes was achieved when 250 educators from around the world came together to participate in the 1973 ICET World Assembly. The proceedings of the Assembly, which was based on the theme, "National and Community Needs: The Challenge for Teacher Education," are presented in the remainder of this volume.

The 1973 World Assembly was held in Nairobi, Kenya, at the University of Nairobi in cooperation with the Kenya Institute of Education. Joseph Lijembe, then Secretary of the Kenya Institute of Education, took major responsibility for the planning, organization and conduct of the Assembly. The cooperation of F.F. Indire, Dean, Faculty of Education, at the University of Nairobi, was instrumental in facilitating the conduct of the Assembly as were the efforts of both a Faculty Planning Committee (chaired by M.T. Wang'ombe) and the ICET Steering Committee consisting of members from the three East African nations. We gratefully acknowledge support from UNESCO, through a grant to the Kenya Commission to UNESCO; the Agency for International Development of the United States; the Kenyatta Foundation; Mr. W. Clement Stone; the American Association of Colleges for Teacher Education; and the eight sponsoring institutions in the United States for the conduct of the World Assembly.

In the final analysis, the success of any conference must be attributed to the quality of the speakers, discussion leaders and other participants. In Nairobi we were fortunate to have speakers who were particularly adept in bridging the gaps between experiences and purposes, discussion leaders who were well-versed in their subjects and who sought to draw on the expertise and experiences of all participants and audiences who were eager to derive new knowledge from the World Assembly. It is the sustained interest of individuals such as these, as well as the institutions and organizations which they represent, which will enable us to move forward in our efforts to effect improvements in teacher education around the world. It is also with much appreciation that we recognize the invaluable contribution of Mrs. Marilyn M. Sheahan in organizing both the conference and this publication.

—Frank H. Klassen, Executive Director

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FROM THE PRESIDENT'S PEN

It is a great privilege for me to be able to convey to you these proceedings of the 1973 World Assembly of the International Council on Education for Teaching. This year marks the 20th anniversary of the founding of ICET, and it has been an important year. During the time that has elapsed since that day at Oxford, England, two decades ago, many changes have taken place in all of our countries that have had a profound influence on our educational systems in general and on the education of teachers in particular. ICET has developed to its present stage during times when the need for new approaches to the education of teachers has been essential. New technology, new knowledge, exploding populations and greater awareness of the possibilities of personal and national development have brought to the forefront the need for greater educational opportunity and greater resources.

With distance and time being compressed into shorter and shorter units each passing year, it is increasingly evident to all that future generations must be better prepared to meet the challenges of society.

No educational system can exist without teachers, and as the complexities of our world increase, it is clear that the priority task facing educators is the preparation of sufficient numbers of well-qualified teachers and other educational personnel to meet national as well as community needs. In addition, it is clear that more of the same teachers we have had in the past will not suffice in responding to the revolutionary changes that are constantly taking place. It is in this context of reform and change in society and education that we who are engaged in teacher education have found new strength and new opportunity through the work of ICET.

For reasons I have already alluded to, the idea that any state or nation faces a unique problem in teacher education becomes more rare each passing day. Increasingly, your problems resemble mine, and the approach of our neighbor to his task can frequently open up new vistas for ourselves. ICET addresses itself to the task of providing a worldwide network of individuals, associations and institutions that are committed to the necessity of developing better prepared teachers to serve the world community. If we are to live and find enriched meaning to our existence, at peace with our fellowman, nothing is more central than teachers.

We who are members of ICET have a great opportunity to make meaningful contributions to the future of our children, our nations and our fellowman on spaceship earth. However, just as it is true in one's own life, so it is with our organization—opportunities bring responsibility.

ICET is now twenty years old. It has developed from weak and shaky beginnings to the organization we know today with members in over fifty countries of the world and an impressive list of accomplishments considering the resources it has had available.

It is my belief that ICET has in fact matured. All of this, however, is not enough. We have so much to do. We need better communication with each other. We need studies with publication of the results. We need exchange study opportunities for teacher educators. We need increased participation through regional conferences and projects. These needs are obviously only suggestive, and hopefully, you will have added your ideas of the future of this potentially great international organization.

Now, how can we go about building into ICET the strengths to assume the responsibilities of an international organization devoted to the education of teachers? First, your own commitment to further the work of ICET is essential. Your own professional development can be enhanced by putting your shoulder to the wheel. You may ask, how can I make a difference? May I suggest that each of us assume a role as an ICET salesman. We need to talk up our organization. We need to solicit others to join, and we need to continually develop and refine the concept of world cooperation in education.

How about encouraging the institutions and associations with which you are personally involved to join those already associated with ICET? Not only is their financial support necessary, but their professional input to future plans is essential.

Finally, your contribution to the planning of ICET's future program activities is imperative. Your ideas are needed, not only at this meeting, but also at other times. Dr. Frank Klassen, the Executive Director, members of the ICET Secretariat in Washington and members of the Board of Directors will always be responsive to your inputs.

My experience with educational associations suggests that organizations which do not keep moving ahead in service to their members and their profession in effect lose their effectiveness. This must not happen, and your Board of Directors and Board of Trustees are determined it will not happen; however, it requires the continuing support of all of us.

Edward C. Pomeroy, President

I
THE ROLE OF TEACHER EDUCATION IN CONTEMPORARY SOCIETY

Institutions that prepare teachers are in the process of significantly modifying their programs in almost every country in the world. This modification is in response to quantitative and qualitative demands for teachers to meet the burgeoning needs of every society. A major theme of the presentation contained in this section is the great importance of motivating and training teachers to become personally involved and committed to the welfare of the community from which their students come. There is also much concern with the need to assure the relevance and applicability of what is learned in Education Personnel Preparation (EPP) to the situations and experiences of the local schools and, in turn, to shape and structure their programs to meet the demands of society. Porter examines such needs in the context of how the educational needs of a society are determined and how school programs ought to respond. The difficulty of balancing the short-term needs of a society against the extensive amount of time needed to prepare young people to fulfill the demands of society is an inherent question in much of what is written. A theme common to both Porter's and Kajubi's presentations is the special orientation necessary for the effective training of teachers to perform competently and willingly in rural areas. The importance of the objectives of community and national development call for increased efforts to develop innovative and creative EPP programs to fulfill them.

NATIONAL AND COMMUNITY NEEDS: THE CHALLENGE TO TEACHER EDUCATION

ARTHUR T. PORTER
Vice Chancellor-Designate
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Education has always been one of the certain instruments for effecting change and promoting development. How far it is a product of, or a cause of, change is another matter. Belief in education as an investment with quantifiable and calculable economic returns may have been called in question by development experts and economists in the last few years, but faith in education as a way of helping the individual and the nation in their search for individual and collective growth has remained unimpaired.

Ten years ago the concept of education as an investment was an accepted doctrine. That historic document on Nigerian higher education prepared in 1960 by an international team, under the chairmanship of Sir Eric Ashby, was appropriately entitled "Investment in Education." Education, in the eyes of the people wresting freedom for themselves, was seen as a key to a whole range of powers—political, social, economic. Its monopoly in the hands of the colonial powers was believed to to be the secret of their ability to maintain their minority rule without requiring the consent of the governed. A conclusive number of studies have shown that the major factor for expansion in, for example, tne United States since 1925—even more important than capital—has been the education and training of the citizens, both men and women. The lesson therefore was clear and unequivocal: that any people wishing to be controllers of their own destiny must strive for accelerated educational development.

In this mood, the new independent African governments were prepared to spend a disproportionate percentage of government revenues devoted to all branches of formal education. The new states were generous almost to the point of improvidence. Education was seen as the important road to success, to status, to prestige for the individual. It was also the important instrument for achieving the major societal goals—the goals of nation building and economic and social development. International agencies responded to this mood by encouraging the new nations to raise their sights and actively seek the democratic aims of education. The UNESCO Addis Ababa Conference of 1961 looked forward to universal primary education in every country by 1980 as an essential contribution to economic growth.

Though statistics may be misleading and are usually subject to interpretation, irrefutable evidence, from data collected by UNESCO, points to the increase of expenditure on education in almost all countries of the world, whether in absolute terms or in relation to total national spending. This increase was most pronounced in the period 1960 to 1965 with the proportion of the national incomes spent on education of a group of 90 countries rising from 3.6 percent in 1960 to 4.5 percent in 1965.

Translated into human terms, this increase represents a considerable achievement. Despite limited administrative capacity, inadequate personnel and finances, in our developing countries enrollment at the primary and secondary levels has more than doubled and, in higher education, almost tripled.

Nevertheless, in spite of the very heavy expenditure on education and the brave efforts by those involved in the process, the gaps between goals and achievements seem to widen steadily; equally so, the gaps in accomplishment between the developed and the developing worlds are not getting any narrower.

As populations have increased without a corresponding expansion of national economic structures, the belief which, as I have said, was popular in the decade of the sixties, that investment in educational facilities is an economic investment, is now being tempered by a realization that education as it now exists is a slow and not very efficient process. It is also now being admitted that it is impossible to measure accurately the economic returns accruing to any country as a direct result of expenditure on education. Economic growth and education are undoubtedly interdependent, but there is no longer general agreement about the degree to which each inspires the other.

In many quarters the optimism and euphoria of the sixties is turning to doubt and disillusionment in the seventies. Some advise retreat into traditionalism from the uneven struggle; others see violence as the only recourse to awaken the conscience of the world. It may, at one level, be argued that present disillusionment with the returns from education is exaggerated because the expectation of what education can accomplish was also exaggerated. It may also be that we are attempting to face a twentieth or twenty-first century world with institutions and methods which date back to the eighteenth and nineteenth centuries. Education, as Mr. McNamara has observed, "is one of the few industries which has not undergone a technological revolution." And he goes on to counsel his World Bank Group Board of Governors: "We must help to move it out of the handicraft stage. With the terrible and growing shortage of qualified teachers all over the developing world, we must find ways to make good teachers more productive. This will involve investment in textbooks, in audio-visual materials and above all in the use of modern communications techniques (radio, film and television) for teaching purposes."[1]

The International Council on Education for Teaching is one of many organizations that are concerned with the inherited structure, concerned at its slowness and inefficiency in terms of the rapid social and economic changes which our world is experiencing. Two changes of tremendous significance have been the growth in enrollments and the diversification of educational programs to cope with the new skills and knowledge demanded by our modern societies. It is said that one man out of every three in the United States labor force is now employed in a job the type of which did not exist when he left school.

There are a number who caution that in the face of this reality, with the attendant spiralling costs and nonelastic resources, and the growing prospect of unemployment, developing nations would do well to slow down their education growth to match their employment opportunities. In a recent paper, two economists, Edwards and Todero, have argued that further investments in education in many developing countries will increasingly be an investment in idle human resources because of growing unemployment and a rising average level of education among the unemployed. But even they do not reject the thesis that there are still certain lower levels of education where expansion can be defended.[2]

This brings me to the first point of my proposition: it is that notwithstanding the very commendable efforts of our governments, the promises of the sixties have not been fulfilled. To illustrate, the 1961 Addis Ababa Conference had advocated an annual increase at the primary level of an additional 5 percent during the short-term period, 1961 to 1966; but the net increases attained was only 1.77 percent. At the second level of enrollments, that is, the 15 to 19 year-olds, the short-term plan had called for an additional increase from 3 percent in 1961 to 9 percent in 1966 or an average annual rate of increase of 19.8 percent. In fact, second level enrollment between 1961 and 1965 showed an annual growth of only 15.3 percent which, though considerable, was well below the growth rate inherent in the target. The conclusion drawn from this by the UNESCO Conference of African Ministers of Education Meeting here in Nairobi in 1968

was that our "primary schools are clearly losing the battle against illiteracy due to the rate of enrollment increase not making enough headway against the increasing population."[3]

This high rate of illiteracy in each of our countries in the developing world is in my view a basic and inexcusable handicap as we progress through this last quarter of the twentieth century. And, without further circumlocution, I would like to submit that a primary task which the world, but in particular the developing world, should address itself to is to try to eliminate, as rapidly as possible, this impediment to development. The strength of a chain, it must be remembered, lies in its weakest link. To be an illiterate, it has been said, is to be a non-participant in today's world. Of course, it is conceded that there are ways to acquiring, storing and disseminating knowledge other than literacy. Indeed some predict that new electronic media will replace reading and writing as ways of communicating and exchanging ideas and information. Whatever the prospects for such development, it is, I am sure, certain that in the foreseeable future, literacy will remain our indispensable vehicle for communication.

Addressing the International Conference on the World Crisis in Education in 1967, Mr. Rene Maheu, UNESCO's Director General, had this to say:

> If there is a flagrant injustice, it is the difference between the educational opportunities open to children in rich countries and those in poor. School enrollments in the underdeveloped countries represent only 28 percent at primary level, 20 percent at secondary level and slightly more than 1 percent at higher educational level of the enrollments in the developed countries. This is not because the leaders and peoples of these countries are doing nothing about the situation. Far from it.

He went on to add:

> The grave inequalities in the condition of mankind that are apparent throughout the world cannot continue indefinitely, and still less worsen—as is the case at present—without jeopardizing our common goal which is peace. And of all inequalities none is more shocking, more intolerable to men's feelings and consciences than inequality of access by children to the light of the mind.

Literacy, as has been aptly described, is our "ticket to ride in the spaceship Earth as it hurtles towards the twenty-first century."[4] All of us have this ticket. The question to be answered is how intense is our concern for those among us and around us who haven't?

Statistics show that out of every 100 Europeans born in 1945, four died before the age of 5, 96 entered primary schools, 93 completed primary school and 81 went on to the first stage of secondary education. In sub-Sararan Africa out of every 100 children in the same year, 21 died before the age of 5, 38 entered primary school, 12 finished primary school and 5 went on to secondary school. This means that only about 1 in every three Africans who entered primary school (already less than 50 percent of the age group) stayed there long enough to retain what they had learned. Each year the number of young people reaching 15 without having learned to read and write in primary school is said to be greater than the number of people over 15 who have become literate. "To reverse this trend," in the words of UNESCO's Director General, Rene Maheu, it would have been "necessary between 1960 and 1970 to double the efforts made for the promotion of literacy during the previous decade." The efforts, as we know, were not doubled and the trend was therefore not reversed.[5] Nevertheless, the situation is far from hopeless because, again in the opinion of Mr. Maheu: "The resources, both human and material, exist; and where there is a will, there is a way."

The problem of the have-nots and the dropouts must be an immediate concern of teachers and teacher educators as they scan the educational horizon. It is not enough to say that solutions must await the widening of the labor market. I think we must accept, and get our governments to accept, that a minimum of four years of useful and relevant education is a *gift* which must be given to the citizens, untied to any considerations of investment. I deliverately use the term gift, rather than right, because I would like to see this as an *harambee* endeavor combining national and international resources, with the strong supporting the weak, rather than if it were a right to be demanded by a radicalism from below.

Recently the United Nations Committee for Development Planning identified 25 countries as the least developed countries in the world to which additional resources must be allocated. I would like to see ICET, probably in cooperation with other international agencies, establish a comparable list of countries with the highest illiteracy rates and therefore in need of most help. It will not be surprising if the two lists are identical.

However high the enthusiasm and the aspirations, Africa cannot afford to spend its already limited resources on programs of functional literacy, on basic primary education, on the retreading of those who have left the mainstream or are already in the pipeline of the unreformed system and at the same time support programs in secondary education and higher education which the production of an adequate supply of middle level and higher level manpower demand, without seeking shortcuts and innovative ways of reaching our goals.

Granted that our countries must do all these things in education, that is, they must ensure that their citizens are literate; secondly, that they must, within the shortest possible period, provide a basic education for all children; thirdly and concurrently, that they must develop education beyond the primary stage in order to train sufficient middle and higher level people to speed up national development—granted all these, then the conclusion is inescapable that in terms of both financial and time contraints, our several countries will never be able to fulfill all these programs on the basis of the present orthodoxy in education.

Are the obstacles so great that hope has to be abandoned? Must we base our approach on the European model and wait another century before the children of what someone has called the three hungry continents—Africa, Asia and Latin America—can find their place in schools?

I am sure that the solution to the problem is not to abandon any essential part of our program, but to link quantity and quality, to find new ways of doing things and of doing them more efficiently. This is the measure of the challenge to teacher education.

Lest I be misunderstood, I am not advocating uncontrolled expansion of our education system, nor am I suggesting that educational development beyond what I have called the gift stage should be unrelated to employment opportunities. But even if all education were employment oriented, we will be deceiving ourselves if we think we will achieve our objectives by merely enlarging the system we inherited or replicating our unreformed schools. By 1980, the school population of the Third World will have risen from its present total of about 400 million to about 600 million. It is also estimated that if these countries are to attain the point of economic "take-off," they will need four times as many semiskilled technicians and another four times as many engineers and scientific specialists as they have today, not to mention agronomists, doctors, accountants or administrators.

What then should go into the making of the teacher as he faces up to these challenges? Certain directions seem clear: one is that the education industry in the future will have to draw its practitioners from a wide range of community members using the professional teacher primarily as the organizer of educational experiences rather than the

sole exponent of educational practice. It seems also clear that teachers will have to be trained to teach the young as well as the not so young. Thirdly, it is clear that the training of teachers can no longer be a once-for-all exercise. For one thing, the corpus of knowledge itself is doubling every ten years, and what is learned today may not be relevant in the next decade. The teacher must therefore periodically recharge his academic and professional batteries. Equally so, children can no longer be trained to remain in that station in life in which it has pleased the good Lord to call them. Today's teacher therefore should so prepare his pupils that they can face the future with confidence in their ability to adapt to the inevitable changes and developments which they will meet in their lives. It must be remembered that children who are now in the first year of primary school may well remain active citizens and members of their country's labor force until the year 2031.

But how many of us can, from today's vantage point, comprehend what the world would be like, and even more, prepare the young for it? How much more difficult then is the burden we place on our teachers in charging them to prepare pupils for that world? Today computers book air passages and make hotel reservations from Nairobi to any part of the world in a matter of seconds; today human beings live normal lives with plastic organs inside them as substitutes for their normal ones. How much of all this was part of the knowledge taught in, for example, 1930?

For us in the developing world, the situation is even more complex. Perhaps the greatest challenge our education systems face is not how to produce expertise for the urban sector, but how best to accelerate development in the rural sector, which, in most of our countries, consists of about 80 percent to 90 percent of the entire nation. Our educational systems are charged with the task of helping to bring our traditional societies almost overnight into the last third of the twentieth century. In rural areas, in particular, our schools are called upon to launch a child from a static and custom-bound environment into a new world of modern ideas, outlook, knowledge and gadgets. At the same time these same schools are cautioned not to alienate the child from his own cultural heritage or from the practical development needs of his own neighborhood. It hardly needs emphasizing that the responsibility for all this will fall heavily on the teacher, hence the importance of his training for his role in contemporary society, both as an agent of cultural preservation as well as an agent for cultural innovation and transformation.

Much lip service is paid to rural development and rural transformation, but it must be accepted that there are few ready-made answers or precedents to rely on in the preparation of teachers to create the indispensible incentives or nurture the commitment of young people that could bring about the much required rural transformation. It must also be emphasized that in this complex process of rural renewal, the teacher is only one of the many inputs that will be required. If teachers are to be effective, they will have to work hand in hand with other authorities in the fields of social welfare and employment generation—with the Health Officer, the Civil Administrator, the Agricultural Officer and others.

The national and community needs of our societies also make it imperative that we prepare not only the teacher for the classrooms or the teacher educator for the training colleges; it is important that we produce that crucial core of educational administrators and others whose responsibility it will be to plan not for a single classroom but for an entire school or school system.

It is now accepted that institutional management has become a profession in its own right, and many industries have moved from the handicraft stage where the master, assisted by his apprentice, can handle all aspects of the work. Today, in addition to subject specialists, the educational orchestra requires educational planners, curriculum

developers, school finance specialists and others, for whom specific preparation must be devised. As Phillip Coombs has suggested:

> The needed revolution in education must begin with educational management. . . An educational system, therefore, must call on a wide assortment of its constituent parts to produce the kinds of skills, knowledge and management instruments required for effective functioning.[6]

It is also true to say that in the past the focus in teacher education has been mainly in the area of formal education. A difficulty about non-formal education, as compared with formal education, it must be admitted, is that it has no natural physical focus like the institutional buildings of a school or college; nor has it a specific age clientele. It has a place everywhere; it can work through youth clubs, farmers' cooperatives, through inservice training, through teaching better family living and so on. Indeed it covers such a wide field that it tends to defy definition. Coombs and his associates have recently defined formal education, in their interim report to UNICEF, as any organized educational activity outside the established formal system—whether operating separately or as an important feature of some broader activity—that is intended to serve identifiable learning clienteles and learning objectives.[7] The Report also indicated that those who are most deprived of formal education are similarly those most deprived of educational opportunity through non-formal means. The Report also identified "a scarcity of primary school equivalency programs designed to give a 'second chance' to unschooled youth and dropouts which would enable them to remedy their primary education deficiencies." There are, in today's world, no justifiable reasons why teacher education should not make non-formal education as much a concern as formal education. I note that this is a specific area of concern for ICET, and we look forward to your recommendations on this important matter.

Education, it has been said, is a labor-intensive industry and must remain so if it is to fulfill the wider roles expected of it. At certain levels, this must be so, because it is not envisaged that the teacher will in the foreseeable future be replaced entirely by gadgets. Some of his roles undoubtedly can be and will be replaced, but there are others such as his role as an agent of community development where machines can never replace men. But in the area of educational instruction, the transmission of an accumulated corpus of knowledge, it is clear that educational technology has a role—and an increasing one—to play in the teaching process.

The objection often heard when educational technology and, in particular, instructional television is discussed is its alleged prohibitive cost. On the other hand, it is argued that the cost factor is very much in relation to the size of the operation under review. Others have suggested that the application of technology to education is a relatively new field, and developing societies with limited resources must wait for the more affluent societies to do the experimenting. But here, as in other fields, an advice of wait and then copy can only lead to a widening of the already existing gaps between the developed and the developing. Here, as in other fields, Africa has to take some calculated risks. It has been said that more harm is done in this world by weak men than by wicked men, and Africa cannot afford to be lacking in courage.

For most, if not all, of the problems discussed so far, the exploration of new and innovative procedures and solutions will call for more study and research. In this exercise, the role that our universities can play in the transformation and reorganization of our education system cannot be overemphasized. In universities the simultaneous call to innovation and reform is a heavy burden, and universities traditionally have even less capacity for change than bureaucracies. Yet if the desired overhaul of the education system must take place, our universities must provide the necessary leadership. Next to

government itself, a university is the most essential instrument in a country seeking to enter the modern world. Next to government, it has the greatest concentration of expertise and talent which can be put at the service of that nation's development. The Open University of Britain and the concept of the *university without walls* are already reaching out and breaking down the artificial barriers between preparation for high level manpower and preparation for effective citizenship, between education and training and between the accepted years for imparting knowledge and lifelong education. Our universities cannot afford to abdicate their responsibility for assisting in the restructuring of the country's education system and leave the task entirely to overseas experts, to World Bank Missions or to international agencies. These latter bodies do have a role to play, but it should be more to offer comment and advice and suggest alternative approaches to programs already identified and to provide technical support rather than to initiate and implement policies and priorities.

In saying all this, one is not unmindful of the tremendous improvements which have taken place in the last few years. But as A.M. M'Bow, Assistant Director-General for Education, UNESCO has written:

> It is not easy to introduce educational innovations; first of all there is the inertia which makes systems cling to their own characteristics; then there is the complexity of the education act and the often negative chain reactions which can be provoked by changes either not sufficiently thought out or inadequately tested. Experience has shown that an exchange of experiences, based on an objective assessment of successes as well as failures, between specialists engaged in reform and research can produce satisfactory results.[8]

The challenges to teacher education from national and community needs may have different local emphases, but basically the challenges are the same. The Williamsburg Conference of 1967 revealed that the maladjustments in most educational systems are enough to talk of world crisis in education. ICET is an international body concerned with the changing panorama of educational achievement and the underlying causes for failures in both the developed and the developing world. Any ostrich-like approach by either worlds, whether, first, second or third, can only spell disaster for all.

Finally, I like to tell that story told by Whittier of how two rabbis, on the day of atonement, prayed the whole day long, each for his sins to be forgiven. Just before nightfall each still felt the burden of sin on his conscience. Finally, one rabbi prayed, "Oh, Lord God, if it be Thy will not to forgive my sins, do Thou forgive the sins of my brother who writhes in the agony of his soul." And just then he felt that he, himself, had been forgiven. The great climax of that poem reads:

> Heaven's gate is not opened to him who comes alone;
> Save another's soul, and thus tho'lt save thine own.

A moral of this story is that whether we are from the developed or developing countries, the first, second or third worlds, our problems are interrelated, and we can affect each other.

In the sixteenth century, the English poet, John Donne, wrote a little poem, which the American novelist, Ernest Hemingway, resurrected and popularised in the title of one of his major novels, *For Whom the Bell Tolls*. I would like to remind you of just two lines of John Donne's poem. He wrote:

> No man is an island in himself; he is part of the mainland.
> Never send to know for whom the bell tolls; it tolls for thee.

Mr. Robert McNamara has put the same thought in more contemporary language. He summed up the problem of the three gaps—economical, technological and educational—in the world when he declared:

> If the wealthy nations of the world do not do more to close this sundering economic split which cleaves the planet, none of us will ultimately be secure. The seismic social shocks will reach all of us, and with them will come the inevitable tidal waves of violence. The widening economic chasm between the rich nations and the poor nations can be as threatening to our security as the emergence of nuclear weapons. It is as simple—and it is as sobering—as that.

Education, it has been said, is the key to development. But just as it is not every key in one's key ring that can open one's front door, so it is not every kind of education that can bring about development.

Footnotes

[1]Robert McNamara. *Address to the Board of Governors of the World Bank Group.* Washington: International Bank for Reconstruction and Development, September 30, 1968.

[2]Edgar O. Edwards and Michael P. Todero. *Educational Demand and Supply in the Context of Growing Unemployment in Less Developed Nations.* Bellagio: Conference on Education and Development Reconsidered, May, 1972.

[3]Dragoljub Najman. *Education in Africa: What Next?* Paris: Editions 2000, 1972, p. 20.

[4]A. Gillett. *Youth and Literacy.* Paris: UNESCO, 1973, p. 10.

[5]*Ibid.*, p. 34.

[6]Phillip H. Coombs. *The World Educational Crisis.* New York: Oxford University Press, 1968, p. 124.

[7]Phillip H. Coombs, *et al. Non-Formal Education for Rural Development: An Interim Report.* New York: International Council for Educational Development, 1973, p. 12.

[8]Najman, *op. cit,* p. 8.

THE ROLE OF TEACHER EDUCATION IN CONTEMPORARY SOCIETY, WITH PARTICULAR REFERENCE TO EAST AFRICA

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From the very beginning of history, the education given to the children has been dictated by the needs of society. For example, the ancient Spartans, preoccupied with dangers of war and the preservation of the state from attack, developed an education system whose central purpose was to produce a society of professional soldier-citizens. The system mainly concerned itself with physical and pre-military training, and aimed at inculcating those qualities such as obedience, self-discipline, craftiness, which the Spartan soldier needed. It ignored those forms of aesthetic cultivation and artistic excellence such as music, art, philosophy, etc., which had little relevance to physical training and military efficiency.[1]

Athens, on the other hand, unthreatened to the same extent by constant warfare, placed a high premium on intellectual and aesthetic excellence reflected in its education system whose central objective was to cultivate excellence in individuals, and in which music, literature, philosophy, gymnastics, art and love of beauty occupied a large place.[2]

In our time, the United States has evolved an education system concerned, among other things, with moulding a powerful modern state out of people of many and diverse ethnic and cultural backgrounds. The schools must and *do* glamorize the American way of life which emphasizes the intrinsic worth of the individual, the work-success ethic—the belief that any one can and *should* lift himself on the socioeconomic ladder by his own bootstrap.[3] All children must learn, to quote Willard Miller, that "the United States is the greatest and best of the nations of history, unequaled in wealth or virtue since time began."

Likewise in the Soviet Union, education is a political tool for the construction of a communist society[4] in which individual aspirations are subordinated to the larger purposes of the community as a whole. The teacher is first and foremost an ideological agent responsible for developing among the young people a scientific, social, political and civic outlook. To be equal to this task, the teacher or intending teacher must not only be well grounded in the techniques of his profession, but he must acquire also a broad philosophical and sociopolitical outlook.

Today, a number of major problems confront and characterize our contemporary society—the most important of these being:

(1) a very high rate of social and economic change in some parts of the world;
(2) a high and rising birthrate in the developing countries of the world and the resulting widening gap between the wealthy and the poorer nations of the world;
(3) a rapid diminution of some of the vital natural resources of the world such as oil, natural gas and wild life;
(4) the pollution of the environment, particularly air and water in the major industrial zones of the world; and,
(5) the struggle for men's minds, resulting in ideological and sometimes physical conflict between the major powers, which threatens the very existence of man on this planet.

These, and many others, are global and universal problems to which teacher education must address itself. For most developing countries, however, the most immediate hurdles seem to be:

(1) the overwhelming dependence on agricultural economies and relatively low returns per man-hour from agricultural endeavour;
(2) very high population growth rates compared to the growth rates of their economies;
(3) ethnic heterogeneity of the population and lack of national cohesion; and
(4) the widening gap between educational demand and educational supply.

Taking East Africa as an example, let me touch on some of these.

The overwhelming dependence of East African economies on agriculture, with the increasing realization that the majority of the children who go through the Primary School system will never see the inside of a secondary school, poses perhaps the greatest challenge to teacher education in East Africa and in most countries of the developing world. Today, as in 1966, when the Kericho (Kenya) Conference on Education. Employment and Rural Development was held, one of the greatest educational dilemmas in Eastern Africa remains that of the flood of Primary School leavers who cannot be absorbed in institutions of further learning or in the urban sector of the economy, and who feel no longer content to remain in the traditional rural environment of their parents.[6] It has rightly been said that the greatest problem that education has posed in developing countries is that it opens the window and leaves the door locked. The majority of the Primary School children who have had a chance to peep at the glamor of what the outside world can offer the educated elite are locked in and cannot get out—either to continue their education or to enter gainful employment. Moreover, only about fifty percent or less of the children of Primary School age generally have an opportunity to have more than a few years of Primary schooling in most developing countries.

Accurate global figures are difficult to come by, let alone to compute, but here in East Africa more than 85 percent of the people live directly on the land in rural areas. To raise their standard of living in the foreseeable future means developing and raising their productivity on land and finding good markets for their products. How can this agricultural revolution be brought about, and what part, if any, can teacher education play in the process of mobilizing the masses of people in their own self-improvement?

How can teacher education sensitize teachers, and through them their school children, to the tasks of development and render them more ready for direct involvement in those tasks?

Demographic Trends

H.G. Wells aptly said that human history becomes more and more a race between education and catastrophe. The history of the developing world is becoming more and more a race between *demography* and catastrophe. Professor Porter, whose paper appears elsewhere in this text, referred to the bottlenecks that are created by high population growth. To illustrate this, a recent UNESCO publication has given figures which highlight this problem. During the First United Nations Development Decade, from 1960 to 1968, the world's population rose from just under 3,000 million to 3,500 million people, giving an average annual growth rate of two percent. The world's total school age population (5 to 19 years) on the other hand increased from 955 million to 1,150 million children at an average annual rate of 2.35 percent, that is to say, at a rate much higher than the world population growth rate. It has been estimated that during the remaining years of our century, the number of school age people in the world as a whole will increase by 1,000 million. These are global figures and do not, of course, reveal the much more dramatic rates of population expansion in developing countries.[7]

In 1959 the population of Uganda was only 6½ million people. Ten years later in 1969, it has grown to 9.5 million at an annual growth rate of 3.8 percent. Today, 44 per-

cent of the population is under the age of 15 years. In Kenya 5.5 million or 55 percent out of a population of 10.5 million were described as children in the 1969 census. In 1966, 41 percent of the children in Primary School age group of Uganda were actually enrolled in schools. Despite a considerable expansion in the provision of Primary School places, the proportion of children in the relevant age group actually enrolled in Primary Schools had dropped to 39 percent in 1969.[8]

Thus educational expansion will lose battle to population expansion, and formal education will become available to a progressively smaller proportion of the population despite the apparent expansion in school enrolments unless drastic steps are taken to reverse this trend. This is a serious challenge to education.

Given that educational expansion is giving way to population expansion, the net addition to the stock of unschooled youths and adults is increasing every year. If these circumstances prevail elsewhere, then not only better education but also more education is needed more quickly than we have hitherto assumed. There is an imperative need to make teacher education more productive so as to cope with the rising expectations and increasing demands for more and better education.

Can we close the widening cleavage between educational demand and supply merely by doing better or more of what we have done before through the step-by-step trial-and-error methods of one-teacher, one-class, country-by-country approaches?

Despite the increased investment in, and public commitment to, formal education, a high proportion of the world's adult population cannot read nor write, and the aggregate number of adult illiterates is rising, although hopefully the percentage of illiteracy seems to be declining.

TABLE 1

World Illiteracy

Year	Estimated World Adult Population (Over 15) (millions)			Illiteracy Rate %
	Total	Literates	Illiterates	
1950	1,579	879	700	44.3
1960	1,869	1,134	735	39.3
1970	2,287	1,504	783	34.2

Source: Edgar Faure, *et al. Learning to Be; The World of Education Today and Tomorrow.*

Should we accept a situation where seven years of Primary education are terminal and in which only 30 to 40 percent of the children of Primary School age are at school; only three to four percent of the children of secondary school age receive any form of schooling; and only one or less percent of the young men and women receive higher education?

There are other facets of demography which pose serious problems to educational development in Africa. One of these is the ethnic-heterogeneity of the population. The population of most African countries is far from being homogeneous. Radio Uganda, for example, broadcasts in about 25 different languages. This divergent ethnicity makes it difficult, if not impossible, to formulate a common language policy of instruction in the Primary Schools. Lack of national cohesion and ethnic rivalry also exist in most African countries. What can teachers' colleges do to inspire patriotism in the teachers who pass

through their gates? What kind of curriculum and teaching techniques will help to foster a national *we-feeling* of identity among the intending teachers and the children who will come under their charge? Above all, how can teachers' colleges and universities prepare and produce teachers who are change-oriented and are able to keep up with change and to remain learners, learning from and responding to changes in their environment, and are able to involve their pupils in profitable learning experiences?

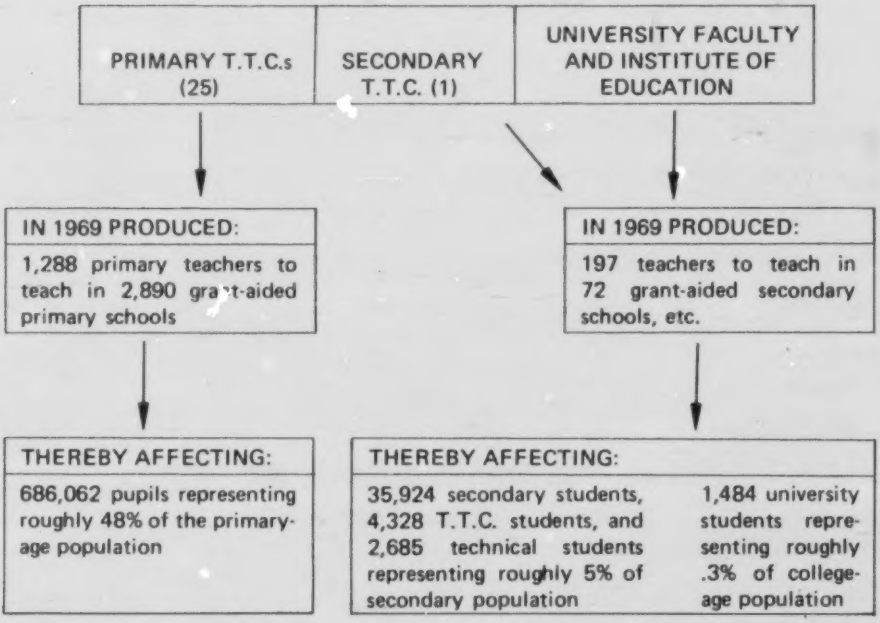
These are difficult questions, and different countries have tried to answer them differently, but there is no doubt that these and similar questions should be at the core of teacher education curricula and programs. For there cannot be a successful change of school curricula without a corresponding and indeed preceding change in teacher education curricula. Emphasis on agricultural, technical or commercial education in the schools can only have meaning in the context of teachers being prepared for these roles. In a real sense, as teacher education goes, so goes the nation.[9] It can be argued that teacher education should take the lead in the development of educational systems, and it should be given priority in the social and educational measures to be taken in any country. Chart I illustrates the national radiation effect of teacher training institutions in Uganda.[10]

Yet, as John Hansen has observed, it is not unusual to find teacher training the poor relation in the family of education in Africa. . . . Despite intentions of the Ministry to treat teacher training as a respected member of the family, the combination of tradition, circumstances and inaction continue to deprive teacher education of the respected status it deserves.[11]

CHART I

THE NATIONAL RADIATION EFFECTS OF TEACHER TRAINING INSTITUTIONS

(The schematic below utilizes data from Uganda for 1969)


PRIMARY T.T.C.s (25)
SECONDARY T.T.C. (1)
UNIVERSITY FACULTY AND INSTITUTE OF EDUCATION
IN 1969 PRODUCED:
1,288 primary teachers to teach in 2,890 grant-aided primary schools
IN 1969 PRODUCED:
197 teachers to teach in 72 grant-aided secondary schools, etc.
THEREBY AFFECTING:
686,062 pupils representing roughly 48% of the primary-age population
THEREBY AFFECTING:
35,924 secondary students, 4,328 T.T.C. students, and 2,685 technical students representing roughly 5% of secondary population
1,484 university students representing roughly .3% of college-age population

The point must be made and emphasized, on the other hand, that although teacher education occupies a critical and pivotal point in educational and national development, it is not a master key or panacea to all educational and national problems. It is only a starting point. Other facets of the education system and of the economy are inextricably involved. It is not enough, for example, nor is it possible to effectively revolutionize teacher education without changing drastically school curricula, teaching materials, examinations and even our ideas about school buildings.

One critical problem, as we have already observed, facing all developing countries to a greater or lesser degree is the mass exodus of school leavers, and unschooled youths and adults alike, from the rural areas into the towns and cities. This migration of people in search for urban jobs or further education opportunities which do not exist has often been blamed on school curricula and teacher education programs which are mainly academic and do not equip the school leavers with the skills and attitudes to enable them to achieve a harmonious and positive integration with the rural environment. The education system and, as has been said, teacher education in particular, has a critical and pivotal role to play in mobilizing the masses of the people to better their role; but it must be borne in mind that the problems and the challenges mentioned above affect other sectors of the economy, and their solution depends on relating teacher education to the wider context of the education system and to the development process of the nation as a whole.

School leavers, no matter how much agricultural and practical education they may have had, will not be content to live in a rural environment based on a one-acre – one-hoe – one-goat subsistence economy. On the contrary, as Professor W. Arthur Lewis has pointed out, the governments levy heavy taxes on the farmers and use the money to provide water supplies, medical services, secondary schools, electricity and transport—not in rural areas but in the towns. In these circumstances, any young man who stayed in the countryside instead of migrating to the towns ought to have his head examined.[12]

What implications do the above challenges and tasks pose for teacher education?

The problems discussed above suggest a new brand of teacher and a new type of teacher education. The second Kenya Education Conference held in Nairobi in 1969 proposed that the teacher of today cease to be merely a classroom operator, but take on a role of community leader, with an understanding of the society he serves.[13] He should, in other words, be an *ANIMATEUR* in his community. With the imperative need to close the gap between rural and urban development, school and non-formal education, this change is most essential. Training school teachers should, therefore, receive training and experience not only in the classroom but also in the techniques of adult education.

Teacher education must be more practical, not only in the sense of imparting practical skills, but also by being more involved with real problems. It is essential that the present cleavage in teacher education between precept and practice—between the theory and teaching methods—must be narrowed. Instead of preservice teachers hearing lectures about, and seeing occasional demonstrations (if they are lucky!) on the use of films, programmed learning, micro-teaching, simulation, guided self-analysis and the like, they should themselves undergo the experience of being taught through these methods.

Can we not apply the Swaneng Hill School of Experimental Farm idea to the field of teacher education? We venture to suggest that in developing countries where 50 percent of the children of school age are actually not in school, an experiment where student-teachers learn to teach by actually running a school of their own, under the guidance of their tutors, be tried. The laboratory or demonstration schools as we do have them today are just other schools with regular teachers who are supposed to demonstrate teaching skills (although they seldom do!) before student-teachers. The school we have in

mind would be run primarily by student-teachers themselves for children who would otherwise be out of school. The student-teachers would take turns in managing the school, under the supervision of their college staff, throughout their course. It would thus be a community of junior and senior learners. If a teachers' college had such a school—which was the direct responsibility of the student-teachers and their tutors—it could do away with the current artificial and expensive teaching practice periods.[14]

Conclusion

We have argued in this paper that teacher education has a critical role to play in national development. If it is to play this role effectively, teacher education must address itself to the practical problems facing contemporary society in Africa. These are the rapid rate of population growth and the concomitant widening gap between educational need and educational supply, the need to concern itself with the overwhelming dependence of the economy on agriculture and the need for rural transformation and, lastly, the need to promote national unity. Teacher education must be more innovative and more productive so as to cope with the phenomenon of large and increasing numbers of people who demand and are entitled to an education. It must be more practical and more involved with community problems.

Footnotes

[1] E.B. Castle. *Ancient Education and Today*. London: Penguin Books, 1967, pp. 14-23.

[2] *Ibid.*, pp. 43-48.

[3] Jacob W. Getzels. "The Acquisition of Values in School and Society," *The High School in a New Era*. Chicago: The University of Chicago Press, 1957, pp. 146-161.

[4] Nigel Grant. *Soviet Education*. London: Penguin Books, 1964, p. 23.

[5] I.T. Ogrodnikor and T.A. Ilyina. "Pedagogy in the Soviet Union," *Current Problems of Teacher Education*. Hamburg: UNESCO Institute for Education, 1970, p. 135.

[6] James Sheffield. *Education, Employment and Rural Development*. (Report of the Kericho [Kenya] Conference, September 25-October 1, 1966.) Nairobi: East African Publishing House, 1967.

[7] Edgar Faure, *et al. Learning To Be: The World of Education Today and Tomorrow*. London: Harrap, 1972, p. 27.

[8] Uganda Government. *Third Five-Year Development Plan, 1971/2-1975/6*. Entebbe: Government Printer, 1971, p. 327.

[9] Carl J. Manone. *Annual Report From Teachers College, Columbia University to AID on the TEEA Project*. New York: Teachers College, Columbia University, 1969, p. 94.

[10] John Hanson. *Report on the Supply of Secondary Level Teachers in English-Speaking Africa: Country Study No. 9, Uganda*. East Lansing: Institute of International Studies in Education and the African Studies Center, Michigan State University, 1971, p. 68.

[11] Adapted from Manone, *op. cit.*, p. 95.

[12] W. Arthur Lewis. *Some Aspects of Economic Development*. Legon: The University of Ghana Press, 1969, p. 30.

[13] Kenya Institute of Education. *New Directions in Teacher Education: Proceedings of the Second Kenya Education Conference, 1968*. Nairobi: Kenya Institute of Education, 1969, p. 20.

[14] W. Senteza Kajubi. "Strategies for Education Change," *Universities of Eastern African Conference on Teacher Education, 1972*. Dar es Salaam: Institute of Education, University of Dar es Salaam, 1973, p. 30.

II

THE RELEVANCE OF FORMAL AND NON-FORMAL STRATEGIES FOR THE RENEWAL OF TEACHER EDUCATION

Well over 600 million people in the world today are attending primary, secondary or higher education institutions, and there are over 17 million teachers teaching them. Add to this figure those employed in some way in servicing education, ranging from those who clean schools to those who print textbooks, and those who run educational television stations, and it is evident why many countries are spending more than one quarter of their national budgets on education. Yet in much of the world there are more school age children outside of the formal education system than are enrolled in it.

As formal education has become prohibitively expensive, alternatives to schools have been sought. Evans and Hoxeng identify a strategy being experimented with in Ecuador to provide literacy and numeracy skills through an informal, low-cost mass education program. Using networks of local leaders and inexpensive materials, efforts are being made to increase the numbers of productive adults and young people. The success of such activities and a growing suspicion of schools' ability to either mediate the values of a society, to formulate ideologies or to assure continuity between school programs and the world of work have caused countries like Tanzania to reexamine traditional educational structures and programs. Meena describes Tanzania's efforts to adapt education to the needs of rural transformation. What is being emphasized in that African country is the need to give children a foundation of general knowledge sufficient to let the primary school leaver take advantage of extension advice and further agricultural or public health training. The primary school can teach the child to read, write and calculate, but by using examples from rural life with vocabulary and concepts derived from agriculture. The objective is to help the young take root in their village environment and to develop a commitment to both agricultural and rural development.

Finally, Dyasi examines the value of non-formal educational strategies to prevent the severe discontinuities that so often characterize societies in rapid transformation. He draws implications for educational personnel preparation from his analysis and suggests the needs for a polyvalent teacher preparation program. Dyasi stresses that linking education to local needs calls for new and different kinds of teachers, who, for reasons of communication and credibility, should be local people. He lays much emphasis on the need for such leaders and teachers to be carefully trained to respond to local conditions and local aspirations.

NATIONAL AND COMMUNITY NEED: THE CHALLENGE FOR TEACHERS IN TANZANIA

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Introduction

In 1967 the President of Tanzania, Julius K. Nyerere, first enunciated a new philosophy of education for his emerging nation. This philosophy was presented in a booklet intitled *Education for Self Reliance* which described the ways education could be used to create a new and appropriate kind of society in Tanzania. This new society, with its roots in the traditional past of Tanzania, had been described in an earlier pamphlet of the philosopher-President entitled *Ujamaa*. The concept of *ujamaa* defined the traditional family as the basis for a socialist society in twentieth century Tanzania.

Following independence in 1961, Tanzania had followed an educational policy similar to that of other developing countries. The major priority had been to develop a small cadre of high level manpower as quickly as possible. To accomplish this purpose, substantial resources were devoted to secondary and university development. By the time of the university student strike in 1966 there was widespread disenchantment with these objectives and in the *Arusha Declaration* the President articulated a shift in emphasis toward rural development. The rationale for this shift was presented as follows:

> . . . the greatest part of the money that we spend on development in the towns comes from loans. Whether it is used to build schools, hospitals, houses or factories, etc., it still has to be repaid. But it is obvious that it cannot be repaid just out of money obtained from urban and industrial development. To repay the loans, we have to use foreign currency which is obtained from the sale of our exports . . . We shall get it from the villages and from agriculture . . . If we are not careful, we might get into the position where the real exploitation in Tanzania is that of the town dwellers exploiting the peasants.[1]

This new emphasis was seen as the basis for building a new socialist and classless society in Tanzania. Its emphasis was on a cooperative and communal effort among the citizens of the country which was to mark the beginning of a new era in the history of Tanzania. In March, 1967, one of President Nyerere's "post-Arusha" policy directives analyzed the system and attitudes of education as they had evolved in Tanzania and additionally encouraged an educational revolution. Schools should serve Tanzania's needs and social objectives. Due to its limited resources, Tanzania came to recognize that its major developmental emphasis had to be in the agricultural sector. Sufficient agricultural commodities could be produced and exported. To enhance agricultural production, an education was required that would enable the majority of school children to learn vocational skills which would prepare them for their roles as better farmers in a predominantly agricultural society. The development of such vocational skills at school would contribute substantially to the improvement of the nation and promote *self reliance*. As a result of this recognition of new purposes, President Nyerere wrote that:

> Schools must also prepare young people for the work they will be called upon to do in the society which exists in Tanzania—a rural society where improvement will depend largely upon the efforts of the people in agriculture and in village development.

The overriding goal of the educational system was to aid "... the creation of a socialist society which is based on three principles: equality and respect for human dignity; sharing of the resources which are produced by our efforts; work by everyone and exploitation by none."[2] Importantly, the President took care to show that the government and TANU were seeking an education to prepare young people as well as adults for broad free reflection on the nature of power and its components and on the forces working in and through institutions. Additionally, education was to awaken political consciousness and to develop democratic virtues. As Nyerere said in an exemplary statement:

> Education must encourage the development in each citizen of t[illegible]ee things: an enquiring mind; an ability to learn from what others do, and reject or adapt it to his own needs; and a basic confidence in his own position as a free and equal member of society, who values others and is valued by them for what he does and not for what he obtains.[3]

These prescriptions for a new and more responsive educational system in our democratically oriented society have had tremendous implications for both the organization of schools and what is taught in the classrooms. As the country moved toward implementation of the President's educational policies, increasing emphasis was placed on the relationship between education and rural development. The country's third five-year development plan, which covered the period 1969-1974, indicated that efforts were to be made to expand primary school opportunities and to give new emphasis to primary teacher education.

The Implications of Education for Self Reliance for Teacher Education in Tanzania

There is widespread recognition in Tanzania of the pivotal role that teacher education must play in reshaping the school system of the country. It is accepted that sweeping changes in the administration, organization, curriculum content and methods of instruction must take place if the philosophy of *self reliance* is to be achieved. The teachers, schools, administrators, national ministry personnel, teacher trainers and university professors are most directly responsible for both designing and implementing these changes and simultaneously guiding students to the acquisition and internalization of the values and skills of *ujamaa* and *self reliance.*

In the past five years Tanzania has moved to change the schools through the revitalization of both preservice and inservice teacher education programs, as well as curricula modifications and workshops for administrators. These efforts and increased budgetary allocations provided free seven-year primary, secondary and collegiate education and a new teacher college emphasis. Such innovations are significantly changing schooling in Tanzania.

For example, in Tanzania today, effort is being made to make the primary school a peopie's school providing both instruction for the children of the village in reading, writing and arithmetic and a meeting place for adults. It is a complete school in that it prepares young people to "fit into and to serve their communities." The minimum entrance age has been raised to seven years, thus increasing the age of school leavers when they seek employment. School farms are being organized and operated by pupils to make the concept of self reliance real to students and to provide practical experiences with tools and simple craft skills. They are to include day-care and kindergarten facilities and a practical room where both children and adults can learn handicrafts, carpentry and domestic crafts. Thus, school will serve as a community education center where school buildings economically facilitate adult group discussion, serve as libraries and can be used for other social functions.

Ideally, the Tanzanian primary school teacher in such a school must be able to create a school environment which offers the maximum opportunity for the child to formulate constructive attitudes about the socialist development of himself and his primary groups. They must also seek to prepare young and adult people with inquiring minds and prepare them for the work they will be called upon to do in Tanzanian society. Generally and importantly, the teacher is responsible for preparing people to shoulder responsibilities, think and make judgments and decisions as free and equal workers and citizens in a free and democratic Tanzania.

To adequately discharge their responsibilties, teachers must not only understand the philosophy and policies of *ujamaa* and *self reliance,* but must be committed leaders. Furthermore, teachers must clearly understand both the role of education in Tanzania and the objectives for each segment of schooling to enhance the development of the nation. Teachers must also understand the community from which the students come and to which they will return after school. They must have knowledge, skills and values which will enable them to cooperate with others in order to provide effective learning situations. They must be good examples to students in all aspects of life.

> This does not mean that education in Tanzania should be designed just to produce passive agricultural workers of different levels of skill who simply carry out plans or directions received from above. It must produce good farmers; it has also to prepare people for their responsibilities as free workers and citizens in a free and democratic society, albeit a largely rural society. They have to be able to think for themselves, to make judgments on all the issues affecting them; they have to be able to interpret the decisions made through the democratic institutions of our society, and to implement them in the light of the peculiar local circumstances where they happen to live.
>
> Most important of all is that we should change the things we demand of our schools. We should not determine the type of things children are taught in primary schools by the things a doctor, engineer, teacher, economist or administrator needs to know. Most of our pupils will never be any of these things. We should determine the type of things taught in the primary schools by the things which the boy or girl ought to know—that is, the skills he ought to acquire and the values he ought to cherish if he or she is to live happily and well in a socialist and predominantly rural society and contribute to the improvement of life there. Our sights must be on the majority; it is they we must be aiming at in determining the curriculum and syllabus. Those most suitable for further education will still become obvious, and they will not suffer. For the purpose is not to provide an inferior education to that given at present. The purpose is to provide a different education—one realistically designed—to fulfill the common purposes of education in the particular society of Tanzania. The same thing must be the provision of knowledge, skills and attitudes which will serve the student when he or she lives and works in a developing and changing socialist state; it must not be aimed at university entrance.[4]

Of much greater importance than this vocational role of the schools was the need for education to inculcate a new set of attitudes, beliefs and values appropriate for a socialist society situated in a rural economy. Schooling was "to foster the social goals of living together, and working together, for the common good . . . " Education was to create "a sense of commitment to the total community and help the pupils to accept the values appropriate to our kind of future, not those appropriate to our colonial past."[5]

Further, the code of professional conduct makes it clear that each teacher has responsibilities to the child under his care; he has at all times a duty to guide each child to

his full physical, mental and moral development both as an individual and as a member of the community. This same code goes on to state that a teacher also has responsibility to the community in which he lives and teaches; to his profession; and that he must fully understand and fulfill his obligation to the state.

It is evident that such teachers need a special kind of preparation. The present aims of teacher education in Tanzania, as expressed in the official prospectus, are:

(1) To educate students in the true meaning of the Tanzanian concept of *ujamaa*;
(2) To train students to be dedicated and capable teachers with understanding of, and care for, the children placed in their charge; and,
(3) To deepen the students' own general education.

To achieve such aims offers tremendous challenges, both quantitatively and qualitatively. An adequate number of teachers is needed to achieve universal primary education by 1989. Consequently, Tanzania has recently added a two-year teacher training program (Grade C-National Service) for students who have finished primary school and their period of National Service. In the first year students are in the training college classroom. This year is followed by a one-year supervised internship as a "cadet teacher" where they will have special attention from curriculum coordinators, district inspectors and their headmasters. This course is paralleled by formal courses of preparation for elementary and secondary school teachers.

Secondary level teachers are prepared in Tanzania at the University of Dar es Salaam and at Dar es Salaam Teachers' College. At Dar es Salaam Teachers' College a number of courses prepare students for both secondary and technical school teaching. (There are also courses leading to the Grade A qualifications for intending primary teachers.) During the 1969-1974 plan period, courses have been initiated for specialists in domestic science and for teachers of commercial and technical subjects. Teachers for agriculture are being trained in Butima National College of Education in Mwanza. A diploma in technical education is offered in a cooperative program with the Dar es Salaam Technical College.

Entrants to the diploma program at the Dar es Salaam College of National Education have finished Form VI and received at least two subsidiary passes for science students and three subsidiary passes for those in arts. Before entering the college students have served part of the National Service. Their course of training at Dar es Salaam College of National Education includes five months in the College as a part of their National Service, one year of academic and professional work and six months of supervised student teaching (internship) in a school. Graduate teachers are being prepared at the University of Dar es Salaam in a three-year course. Students receive either a Bachelor of Science in Education degree or a Bachelor of Arts in Education degree. Students in education take the regular program in the arts and science faculty, with education taking the place of an elective.

Most of the teachers for the primary schools are prepared in twenty-two National Colleges of Education. This program is particularly imbued with the attitudes, values and purposes of *Education for Self Reliance*. Part I of the Grade A training course consists of five months in a National Service Camp followed by two months serving Tanzania through participation in a "Nation Building Project." In this way, the preservice teachers bring to their training a sense of purpose and an understanding of the problems of rural development. Part II is eighteen months in a College of National Education. Part III is two years on probation in one of the public schools, and after this long training, an official Certificate is awarded.

The course as taught in the National Colleges of Education has one dominant theme. This is what we call "National Education" which promotes the national philosophy of *ujamaa* and fulfills the needs of the country by defining the role of the

teacher in the process of national development. The course includes principles of education, educational psychology, schools organization, adult education, youth leadership and a research project. In each part of the course there is a strong participatory element built on the ideas of *ujamaa* built on the traditional way of learning where all learning was participatory. A child taught how to build a house learns by actually participating in building the house, not just building a small model house. A girl who is taught how to cook actually cooks the family meal. That is what we now term productive learning.

In the teachers' colleges productive learning is an integral part of every course. For example, the students produce little readers for the primary schools as part of their activities. It is also intended that "National Education" will include some part devoted to adult education—but an adult education that concentrates on helping the people in the villages. The quality of a primary school is going to be judged, in part, by the progress in the village. It is for this reason that our course is rather strong on the concept that adult education should change the village. It is also intended that primary school teachers contribute to the goals of eradicating adult illiteracy by 1975. As a result, our teachers are also given training in how to respond to the unique needs and interests of adults.

Other aspects of the course are the preparation of the teachers to serve as local leaders and to work in Kiswahili, the national language. Teachers in the primary schools are to inspire in young people the concepts of Tanzanian socialism. This is encouraged through community improvement, farming activities, "clean-up" responsibilities on the campus, sports and games and some periods of military drill.

These same attitudes and values needed to be developed in our serving teachers since they were trained under an earlier system and for different roles. To accomplish this retraining, the Ministry of National Education helps experienced teachers find theoretical and practical ways to implement *Education for Self Reliance* and to make them leaders in the communal activities of the *ujamaa* villages. This is done in a four-week course at the Gabamoyo Orientation Center. This institution has been operating since January, 1969, where one-third of the time is spent in political education and one-third on teaching methods. The remaining third of the time is divided into such activities as: practicing for *self reliance* by caring for the school farm; taking a field trip to Dar es Salaam; discussing problems facing teachers and listening to national political, government and business leaders.

One important aspect of the course is the teacher analysis of the existing texts and materials and the identification and selection of Tanzanian examples applicable to the:

> universal concepts, generalizations, principles, modes of enquiry and specific skills of any one content area. For example, the taxonomy of plant and animal species results from a pupil/teacher exploration and observation of the local environment. Intellectual enquiry in chemistry and biology is concerned with chemical cycles, web-of-life relationships and the relationship between the biotic and abiotic environment which begins with the particular locality in which the pupil lives and moves out from there. The study of geography starts with local percepts and goes to global concepts. Percentages are taught in math by dividing a bowl of ugali into parts instead of the pie usual in texts where pie is a feature of the common man's diet. Sets and subsets use local fruits, etc., as examples. Primary science students observe the microscopic life in a drop of water with a bead microscope simply made of local materials. They discover mosquito larvae in the tin can which has been carelessly discarded or in the folds of a banana leaf and note the effects of oil or lack of water on its development.

> The study of history is no longer viewed from the point of view of the colonizer; rather it has been rewritten to include the quite different viewpoint of the colonized. Pupils may be assigned to gather oral history as a part of their learning experiences.[6]

In addition there has been a modification in the methods of teaching which has been emphasized through inservice workshops. Inquiry and problem solving have been the foci for efforts in both the teaching of science and social science. Teachers are encouraged to teach, through examples, the best of child care, nutrition, animal husbandry, intermediate technology, water conservation, etc. They are also encouraged to keep chickens or rabbits, grow fruit trees, maintain good health practices and keep clean homes in order to be exemplars for both the children and the adults of the village.

In our desire to make our educational system reflective of our society, we have nationalized the school leaving examinations and localized teaching personnel as much as it is possible.

When students first enter the course at one of the National Colleges of Education, they are required to sign an agreement to comply with the rules of the college. This agreement includes:

(a) To proceed to the venue of the course as directed (both as to time and means of travel);
(b) To begin his/her training at such time as may be appointed and to continue diligently with such training until the completion of the course;
(c) To follow any directions which may be given to him/her by the officer-in-charge of the course;
(d) To devote his/her full time and attention to following the course for which he/she was selected unless permission to undertake other work or modify his/her course in content or duration is granted;
(e) At all times to comply with the requirement of the course regarding conduct and discipline;
(f) To satisfy the Government as to his/her attendance, conduct and progress by reports from the officer-in-charge of the course;
(g) To understand that his/her attendance at the course may be suspended or terminated if she/he is found unfit to complete the course;
(h) To sit for any prescribed examinations or group of examinations within the time fixed by the Government;
(i) Not to marry during the duration of the course without the permission of the Government;
(j) Whether or not permission to marry is granted, to complete the course without interruption in a satisfactory manner and to fulfill all the conditions under which he/she was selected to attend the course.

When students complete the course of training, there is a final assessment of their attitudes, proficiencies and abilities before they are able to proceed to their first assignment. This assessment consists of:

(1) *Assessment of Character.*

Throughout the training period the student's character is assessed by all tutors with whom they are in contact. The major headings on the character evaluation are: reliability, cooperation, leadership, initiative and voluntary work. Further headings and details may be added as found necessary and appropriate. "A" is given for excellence and "E" for poor. The highest and lowest rewards must always have explanation and must be discussed and accepted in a staff meeting on the assessment and character evaluation of students.

(2) *Assessment of Proficiency in Practical Teaching.*
Throughout the training period, tutors make assessments of students' potentialities as teachers by observing them teach, organize learning situations and involve themselves in other school activities. For these a cumulative record is kept to form the final grade. The final grading, which ranges from "A" for excellent to "E" for incompetent, is subject to the moderation of each college by a panel appointed by the Ministry of National Education which normally observes selected students during their last teaching practice session.

(3) *Examination.*
The examination has three parts consisting of papers set externally (in order to serve as a check on the quality level of all the colleges); internally (in which the cumulative course work is assessed); and three projects. These projects include an education or teacher exercise, a Kiswahili activity and a community-based effort.

Thus more than two-thirds of the final assessment consists of things the student actually does and only one-third of the things he writes on paper. After a successful completion of the assessment, teachers make agreement with their employer, which is normally the Government, to:

(1) Join the Unified Teaching on first appointment;
(2) Be paid according to salary scale laid down;
(3) Be ready to be posted to any part of the country;
(4) Be ready to be transferred to any public school;
(5) Take leave of not less than 35 days each year during the school holidays except when required for duty or to attend a course;
(6) Be ready to undertake duties in school other than teaching and be ready to attend courses approved by the Director of National Education;
(7) Refrain from undertaking any other employment or activity for profit without the consent of the Director of National Education;
(8) Be ready to be medically examined at any time during his/her service;
(9) Observe the "Code of Professional Conduct" for members of the Unified Teaching Service;
(10) Be prepared to retire any time after the age of 45 and to retire from the service at the age of 55 if not called out previously;
(11) Give three months notice, or one month's salary in lieu of, after serving for not less than 5 years before resigning;
(12) Be paid sick leave entitlement up to one hundred and eighty days of full pay, and a further 180 days one-half pay in any period of three years, except if illness is attributed to teacher's negligence;
(13) Be entitled to a maximum period of three months maternity leave on full pay.

The Future of Education for Self Reliance in Tanzania

While we have accomplished much in translating the philosophy enunciated by President Nyerere into a viable teacher education program and in changing our primary and secondary schools into truly Tanzanian institutions, there is still much to be accomplished. While primary school enrollments increased by some 106 percent in the decade following independence, only about half of all school age children are today able to find school places. The Tanzanian Government plans to expand primary school enrollment so as to achieve universal primary entry around 1989. In the period 1961-1969, overall enrollments in assisted secondary schools more than doubled while enrollments in the higher schools increased six-fold. Even so, there is still a great "bottleneck" between the numbers leaving primary school and those able to enter secondary school.

To improve teacher education and accomplish *Education for Self Reliance,* the Grade C program has been revitalized. Our present allotment of almost 24 percent of the national budget for education is the most convincing indication of our commitment to expanding educational opportunities in Tanzania. These are some of the attempts and implications of the national philosophy of *ujamaa* and *self reliance* for teacher education in Tanzania.

Although Tanzania is not yet a socialist self reliant country, we urgently aspire to achieve that status. Although we are progressing more slowly than we had planned, we do feel that we have chosen the right path for our development. Only through cooperative and communal work and hard thinking can we liberate ourselves from the miseries of poverty, ignorance, disease, oppression and exploitation. Our weapon is *Education for Self Reliance*, which means much hard work.

We would like to thank our friends for their moral and material support during the past decade and ask them to bear with us as we make teaching and learning more relevant to contemporary Tanzania, applying it towards solution of our national problems as well as promoting international understanding.

The foundations have been laid. There is nothing to prevent us from moving forward. We have discovered that things can be difficult, but nothing is impossible for a determined people.

Footnotes

[1] *The Arusha Declaration and TANU's Policy on Socialism and Self Reliance.* Dar es Salaam: Publicity Section, TANU, 1967.

[2] Julius K. Nyerere. *Education for Self Reliance.* Dar es Salaam: Government Printer, 1967, p. 5.

[3] *Ibid.*

[4] *Ibid.*, pp. 7, 8, 16-17.

[5] *Ibid.*, p. 7.

[6] Anza A. Lema. "Progress Report: Institute of Education, University of Dar es Salaam," *Critical Issues in Teacher Education.* Kampala: Makerere University, 1970, pp. 125-138.

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NON-FORMAL EDUCATION: A NEW APPROACH IN ECUADOR

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In the seventies, teacher training institutions are taking a new look at kinds of roles which teachers will be playing in the schools and communities of the world. There is an increasing awareness of the need for teachers to be more than classroom instructors and an accompanying realization that the educational needs of many communities cannot be met solely inside the classroom. In short, there is a movement toward increasing the permeability of the school walls, toward a mixing of community and school needs, resources, and learning opportunities.

Parallel to this reassessment of the teachers' role, is another movement variously labelled as out-of-school education, adult education, or non-formal education. This movement draws on the philosophy of radical critics of schooling like Illich and Freire and combines their ideas with a variety of pragmatic techniques drawn from community development and adult education. The resultant non-formal educational approach is characterized by flexibility in time, place and content of learning. Often it utilizes para-professionals, emphasizes learner oriented methods, and provides information and skills directly relevant to the learner's life situation.

The case study presented in this paper grows out of an attempt to create a new approach to non-formal education which is appropriate for the situations found in rural Ecuador. The techniques which have evolved there over the past several years have attracted considerable interest and may well be relevant to other parts of the world where similar educational needs are to be found. Many of the techniques may also be useful in more formal school settings, or in school-based community programs. Teacher training institutions may need to become more directly involved in such non-formal approaches as the role of the teacher continues to change.

*Basic Philosophy and Rationale of the Project**

The need for alternative sources of education is particularly critical in rural areas of Ecuador. The majority of the population (61 percent) lives in rural settings and survives either by subsistence farming or by working on large *haciendas*. Included in the rural population are almost all of the Indians, who represent about 40 percent of the total population of Ecuador. Nearly half the population is under 15 years of age, and the overall population is growing at a rate of 3.4 percent per year. The education facilities available to serve the rural population are severely limited. Overall, 20 percent of the 6-12 age group is not in school. In rural areas the percentage not attending is often much higher. Very large proportions of those who do attend repeat grades and subsequently drop out well before the end of primary school. Only 13 percent of the children who begin first grade in the rural areas finish sixth grade, while nationally—taking urban and rural groups together—nearly half those who enter first grade fail to complete even two full grades. In spite of this, over 70 percent of the population of Ecuador is reported to be literate, although the definition of literacy is vague and often means little more than the ability to sign one's name.

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*The philosophy and the techniques of the project have evolved over a period of several years, and it is now difficult to separate out specifically who is responsible for which aspects of the project. In this paper, the authors have attempted to accurately describe and summarize the project which is necessarily the result of the efforts of many different people.

Those who do attend school find a traditional academic curriculum, teachers with limited training and often little knowledge of the local culture and language, a scarcity of books and other learning aids and buildings of poor quality. What learning resources there are seldom relate to the life and experiences of the rural children. Books depict urban scenes, activities and clothing styles unknown to most of the children.

The prospects for significant improvement and, more importantly, substantial expansion in the size of Ecuador's formal education system are very limited. Ecuador now spends 4 percent of its GNP or about 25 percent of its national budget on education. Even the most optimistic estimates of rates of economic development indicate the impossibility of significant increases in the number of people served by the formal educational system. When combined with the inability of the schools to provide content and skills which are functionally useful to rural peoples, the need for serious experimentation with other approaches to rural education becomes very evident.

In this context the project set out to explore the possibilities for rural education at the opposite end of the spectrum from the relatively expensive formal system of education. A number of basic principles guided our early decisions about what we would try to do and the methods we chose to experiment with. These are set out briefly below.

(1) *Emphasis on functional education:* Our major educational goals were the learning skills and knowledge by rural people which would be directly useful to them in their lives and villages. Emphasis was therefore placed on such things as the numeracy required for market settings and on awareness of problems in one's environment and the options available for their solution. A major goal was the development of a sense of self-worth and a belief on the part of the participants that they could learn and that they could have an influence on their own life situations. Literacy was included in our goals, but only as it related to the villagers' needs, and not as an end in itself. The extent of emphasis on literacy or any other skill depends on the situation. The emphasis changes over time in any particular setting as the people become more aware of their potential and identify new needs.

(2) *The use of non-professional manpower:* The project started with the assumption that any educational mechanism which required a fully-trained and paid professional in each village would be impractical. Even if such people were not professionals and had only low levels of formal education, their cost would strain the available resources severely. Use of non-professionals also emphasizes the basic philosophical viewpoint that people can learn from each other and that education doesn't necessarily require someone labeled "teacher."

(3) *The use of attractive and self-instructional materials:* Having opted out of the formal schooling model, one gives up compulsory attendance, authorization relationships between teacher and pupils and the option of relying on an external set of motivators. As a result, non-formal materials must be attractive, self-motivating and suitable with relatively little outside input. The materials must require only the level of numeracy or literary skills which users are likely to have. Topics must be related to the lives and experiences of rural villagers and must be perceived as useful and entertaining. The goal is to provide a series of materials which rapdily lead people to create further materials of their own and to take an active part in structuring their own learning. Finally, materials need to be cheap, easily reproducible and readily available.

(4) *Use of a wide variety of distribution systems:* Taking heed of Ivan Illich's recommendation about learning networks, the project sought to promote a wide range of methods of distribution and use of materials. A conscious decision not

to build a centralized bureaucratic model of non-formal education was made. Instead, the project was to function as a resource center for ideas and for pilot development of materials. The project would work with any institution which showed an interest in the materials and would agree to use them in current or future programs. The goal was to make a set of new materials and processes available to government, private and local organizations of many kinds.

While the project also cooperates with the formal school system, its primary target during the initial stage is that part of the rural population which is now largely untouched by the schools. However, the project has been working directly with the adult education program of the Ministry of Education, precisely because it is reaching some of the populations not included in the schools. In addition, the project is seeking to create a private sector where commercial firms make use of the existing network of local markets to demonstrate and sell a variety of low cost educational devices.

(5) *Materials to be created and developed by Ecuadorians:* Although an initial set of twenty basic ideas was created at the University of Massachusetts by the project staff, much of the subsequent adaptation and creation of new materials is taking place in the field. To facilitate this process, the ideas created outside were presented in partially completed form with sample materials purposely produced in an unfinished way. Rules for games were often not shared in their entirety with groups testing the materials. As a result, substantial modification of pilot ideas took place from the start. After the first six months, most of the new techniques were developed in the field.

Materials Development

From the beginning the staff felt that the type of materials developed for the project would be a crucial factor in determining who used them and how they would be used. A set of guidelines for materials was developed which set out criteria for judging their appropriateness for rural non-school education. A brief discussion of these criteria will help the reader understand more clearly some of the implications of the principles discussed in the previous section.

One of our primary criteria was that the materials be *cheap and easily reproducible* from locally available materials. Ideally, many of the devices could be constructed by the villagers themselves once they were exposed to a model. Thus things like wooden dice, simple playing cards and games like ring toss or simple roulette could be easily constructed by local carpenters. For board games requiring more complex printing, we are experimenting with making the facing available for villagers to put onto a board which they provide. Devices which are produced outside the village should be durable, attractive and above all cheap—well within the budget of typical families. This means there is an effective limit on the cost of reproduction of most materials of $1.00 U.S. or less.

Another important aspect of the materials is their *motivating* ability. Above all they must be fun to use and must spark interest and participation on the part of the users. The goal is active involvement so that users gain confidence in using the concepts of skills taught by the materials. Since there is nothing compulsory about the use of the materials and since external rewards are largely non-existent, the materials must carry the full motivation ability within themselves. Full use is made of local cultural traditions of entertainment. Gambling, competition, prizes or whatever seems to generate enthusiasm and participation is used whenever appropriate. Flexibility in the components and processes used in games is often a motivator. The more villages can change the materials to make them fit local circumstances, the more they will participate.

Materials should have *immediate relevance* to the users' situation and where possible should relate to *popular culture.* Materials need to appeal to villagers with little or no formal schooling, people who haven't been taught that learning occurs as separate subjects like math or history, people who will naturally relate the materials to the substance of their daily lives. Even reading and writing and simple math can be readily related to a discussion of community problems and issues. Such an integrated approach to self-development can often be facilitated by making use of aspects of popular culture. Local games can be modified to include practice of numerical skills, competition can be expanded to include new knowledge, and so forth. A number of the project's current materials are direct modifications of locally popular games. For instance, instead of prescribing in the rules of a game the way in which disputes are to be resolved, the process is left to be devised by those playing the game, according to their own customs.

Use of the materials should be possible with only minimal input from trained outsiders. In most cases it is intended that local non-professionals with short intensive training will be able to make use of the more complex materials. The simpler devices should be *self-explanatory* and require little more than a group of individuals interested in using them. Most of the devices should require little in the way of literacy skills. Even the more complex simulation games can be transmitted verbally as long as someone in the village knows how to play. For example, the *hacienda* game, instead of having written rules, incorporates the role of a lawyer who knows the rules. Players must negotiate with him as they go to discover what they can or cannot do. Under such circumstances, rules are very flexible, and each village or group tends to develop its own version of the game.

Finally, materials should be conceived of as part of a *self-generating* curriculum, rather than a finished product. Various conscious techniques should be used to provide learners with a framework upon which they can build content and procedures which are valuable to them. Avoiding written rules, using unfinished versions of games, keeping materials simple and unimpressive to avoid intimidating users; all these are techniques which help the materials to serve as input to a process rather than as endpoints. The overall purpose of non-formal education is to release local resources and to develop in people an awareness of their ability to learn from already available materials and people.

The materials developed during the first year of the project meet these criteria to varying degrees. As further usage occurs in the field, a better understanding is emerging as to the relative importance of different criteria in various settings. Future development should contribute substantially to the process of evaluating these criteria for judging materials.

The devices which have been developed can be grouped into three general categories for convenience. They are: (a) simulation games—often board games which deal with complex social reality. They are intended to clarify social issues and promote group discussion of problems. Often the games provide a means for exploring and testing possible behaviors in real life situations; (b) fluency games—these deal with simple numeracy and literacy skills by creating entertaining and involving processes which provide practice and increase the confidence of the players in their abilities; and, (c) expressive techniques—this is something of a residual category which includes a variety of devices designed to make it easy for villagers to create stories, write things and generally express themselves. Included in this category are things like the *fotonovelas* featuring photographs of real *campesinos* and Indians and portraying a realistic struggle in their lives.

In this paper we will not present a detailed discussion of each method or technique used. Only brief mention will be made here of a few examples to indicate the type of materials included in each category. The simulation games which currently exist deal with

a variety of situations. *Hacienda* simulates the setting of a rural Andean village and deals with issues of land ownership, improved farming and the role of various local authorities. *Feria* is a game which focuses on market economics and the seasonal changes of prices. *El Robo* is a simple game which revolves around the perennial problem of what happened to the money in the Coop treasury. The game of *Coop* simulates a simplified version of the annual cycle of buying and selling by a cooperative. The game requires accounting skills on the part of the manager, and all players participate in an annual election where a decision is made to retain or replace the manager.

These games and their growing number of adaptations vary greatly in the amount of field testing which has taken place so far. Clearly established, however, is the fact that such games are feasible, that they are intensely involving for rural villagers and that they are effective in generating heated discussion and analysis of both the games and the real life which they simulate. Precisely what cognitive information they transmit, or exactly what aspect of the games is most effective in producing learning, are questions which remain to be answered.

Fluency games tend to be much simpler and come in a myriad of forms. Basically they consist of things like dice or cards containing letters or numbers. In all cases a simple set of rules provides players with turns at creating words, solving simple math problems, matching problems and solutions or betting on the outcome of a roll of the dice. Variations include a number and word bingo, a mathematical roulette game, a pinball game and a variety of word games based on traditional Ecuadorean betting games. In most cases the materials required are very simple and can be used in a variety of ways as players make up their own rules. These games have proven to be very popular, particularly among people with very limited skills. The games are non-threatening and entertaining. In formal literacy classes and in school settings they have been found helpful in maintaining attendance and dealing with discipline problems.

The expressive games have had less field testing than the other categories and in some cases are still in the idea stage. An example of the latter are rubber stamps. They are conceived of as a set of simple figures—human figures, animals, houses, etc.—which people can use to make their own posters, to create visual stories, to illustrate ideas or just for decoration. Basically they will be used as literacy support devices. In a similar vein, photographs and posters of local scenes and events can be used as stimuli for group discussions. Such devices are part of the process often used by people following Freire's consciousness-raising approach. As already indicated, the *fotonovelas* are included in this category. In the future such things as traveling drama groups made up of the actual people in the *novelas* and a set of cheap puppets which communities could use as a step in the direction of creating their own local theater presentations may result from the *novelas*. As can be seen from this very quick overview of the techniques being tried by the project, our first year has been spent in generating multiple techniques and methods for non-school education. Our approach is eclectic, based on the assumption that few precedents exist and that there is little basis for *a priori* elimination of materials. We also believe strongly that peoples' interest continues longer if they have a chance to choose their activities from a variety of alternatives. In a similar way, we are committed to working with a variety of institutions and potential distribution networks.

Distribution and Use of the Materials

One of the basic tenets of the non-formal education project is the commitment to the use of a heterogeneous means of distribution. In Ecuador, as in many other developing countries, there is really no such thing as a genuinely national agency. Government ministries with national labels in fact serve only a selected part of the

population in any effective way. This is particularly true of the educational system, as was indicated by the figures at the beginning of this paper. The goal of this project is to explore ways in which the unserved part of the population can be reached and provided with functional education.

Without massive new outlays of resources, the only strategy which seems feasible is to find ways of making use of existing networks of communication. Creating new institutions or greatly expanding the size of existing ones is very expensive and time consuming. The alternative is to add to the activities of existing institutions and networks or to encourage modification in their activities. In either case the cost and time required are small relative to other strategies. As a result, the project has sought out and tried to make use of a wide variety of distribution vehicles for the non-formal educational materials. There are three types of distribution networks which might be used: large existing institutions, non-institutional networks and commercial distribution networks.

Institutional Networks

The most extensive of these agencies is the Catholic Church, which has in the past proved its ability to contact and affect a huge percentage of the population in Latin American countries. Even if people are not *good* Catholics, they certainly have been influenced and taught by the Church. While many of the goals of non-formal education are compatible with those of the Church, the intent to increase participation and awareness of the possibilities for change may not be congenial to all Church officials. There exists a minority group within the Church which is advocating substantial reforms in the activities of the Church. This group would likely be supportive of the project goals and methods. The reaction of other parts of the Church remains to be seen. Present experience suggests that the reaction of the local village priest depends greatly on the way in which an approach is made to a community.

The largest agency whose explicit goal is education is of course the Ministry of Education. Their adult education program operates in all the provinces of the country and enrolls a substantial number of adults in literacy classes. Classes generally meet five nights a week for several hours. They are taught either by primary school teachers who are paid extra or by people hired specially for the task. The number of classes in each province varies from 10 to 15, in some, to 100 or more in other provinces.

The non-formal education project worked on a pilot basis in the adult education centers of one province this year. The teachers from all of the centers in the province received a short training session, and the Ministry is making copies of some of the project materials available to them for use in their regular program. In this setting, the non-formal materials are being used by an aspect of the formal system. The staff and the setting are typical of formal educational settings, but the materials and the clientele are characteristic of non-school educational efforts. In addition, some of the primary teachers working with adults have already taken the non-formal materials into their classrooms in school. If government reaction is favorable, the project expects to expand its work with adult education to cover several more provinces this year. Eventually the non-formal materials may be used on a national basis in these centers.

Mision Andina, Ecuador's national community development agency, currently operates in 5 of the 17 provinces of the country. Preliminary contacts with them have resulted in expressions of interest on their part to try certain of the materials developed in their own programs. Contacts with a number of Cooperative Unions have produced different results: some have been anxious to use materials immediately by distributing them to the education officers in the cooperatives; others, suspicious, have adopted a policy of waiting to see how the materials are used in other settings first.

Although cooperatives are not organized with education as a major goal, some of their major problems seem to spring from the fact that their members do not understand the basic principles of a cooperative and from the fact that many of them lack basic numeracy skills. Materials developed by the project to improve fluency in basic skills, as well as several simulation games designed to teach some of the principles of cooperatives, can be easily used as part of the activities of cooperatives during regular meetings. Once such activities are started, new needs arise and can be dealt with. One direction in which discussion can move is toward issues of nutrition and food preparation, for which a prototype game (*La Comida*) is also available.

The initial policy of the project has been to encourage experimentation with the materials by the widest possible range of institutions and individuals. This cafeteria approach means that any interested group can look over the range of materials available and decide to take one or more of them to try in their own organization. The project does little direct selling of the materials. Institutions which react in a negative manner are left alone, often to return six months later to ask if they can use a particular technique which they have heard of from an agency which is trying it out. Groups showing more than casual interest are offered short intensive training programs for members of their staff to become acquainted with the materials and ways in which they can be used. Organizations are encouraged to modify both the materials and the way in which they are used to best suit their purposes. The project asks only that feedback on what happened be made available.

The project is firmly committed to field testing the policy of promoting a multi-faceted distribution network for the non-formal educational materials. Our belief is that only in this way can substantial new resources be generated as people and groups become interested in using the new approaches. Each group must make its own materials—the project will only provide a few initial samples—and must find a way to sustain the interest generated by the first use of the materials. Our goal is a substantial multiplier effect which doesn't depend solely on government support of one or more ministry operations. Our goal is a complementary set of agencies, both government and private, which together reach the parts of the population currently neglected.

During the second year the project will set some priorities for focusing its own resources, but will continue to supply materials and training to a wide range of agencies, in the belief that such an approach deserves full-scale trial. Thus while the project will focus on certain selected agencies and provinces, our intention is to have development and spread taking place in other areas without our direct participation.

Non-institutional Networks

In addition to using existing institutions, the project has fostered the creation of a non-institutional approach. CEMA, an Ecuadorian training agency, selected seven rural communities as sites for the first trial. Each village chose two to five people who received intensive training for a period of four weeks and then returned to the village to begin acting as learning "facilitators." These facilitators organize regular meetings of villagers—both adults and children—during which a variety of learning activities take place. They play learning games, discuss community problems, improve their skills and confidence with literacy and numeracy and often go on to take action concerning a village problem. Except for periodic visits from the trainers, these facilitators proceed on their own. Encouragingly, all seven villages continue to have functioning groups nine months after they began.

A second phase has now begun. Surrounding villages without facilitators have become interested in the materials and want to use them. At first they borrowed materials

and made their own copies. Now sufficient interest has been generated so that the original facilitators are running training courses for selected individuals from other villages. The result is a situation where *campesinos* from one village select representatives who receive training from a *campesino* facilitator in a neighboring village. Under these circumstances there is a high probability that what is taught will be directly relevant and will contain a minimum of useless external content. Potentially the costs of such a process are very low, and the possibility for spontaneous spread high. If such a process became self-sustaining, the multiplier effect and the low cost would make it very attractive.

Commercial Distribution Network

Complementing the other two distribution networks is a third possibility: a commercial, market-based system. In effect this means making use of the private profit incentive in combination with existing wholesale and retail distribution mechanisms. One approach to commercial distribution being explored by the project involves a combination of local producers and groups of traveling salesmen called *"charlatanes"* in Ecuador. Commercial production and distribution is also being used for the *fotonovelas*. In the latter case the normal commercial channels for distribution are being supplemented by a variety of other mechanisms. For instance, some thought has been given to using bus drivers as a mechanism for reaching rural areas. Here, as in all cases, the project is pursuing a goal of multiple, complementary systems rather than relying on any single system.

The *"charlatane"* system seems to be most promising in areas where the population is too thinly spread for schools or where the terrain produces isolation. In these settings non-institutional methods are necessary because the economics of most institutional operations prevent them from penetrating into such areas. Even the poorest area has periodic markets. Because much of the material being produced for use in non-formal education is of a virtually self-teaching nature, it is feasible to think in terms of dissemination through markets or even village-to-village sales. For the very poor areas, the wares could be subsidized by being made available to the *"charlatanes"* at less than cost. The amount of subsidy would be small since the materials are very cheap. In many cases the *campesino* would need to buy only part of the device, since he could easily make the rest himself. The *"charlatanes"* would earn a percentage on anything which they sold, and with such incentives, would quickly devise effective schemes for reaching as many people as possible. One can also envision *"maestro-charlatanes"* who would combine a training and motivational role with their activities as salesmen. Again the attractiveness of both a low-overhead and a self-motivating distribution system is present.

The combination of institutional systems—both governmental and private—with non-institutional systems and with commercial networks has the potential of forming a comprehensive national network made up of complementary distribution systems. The result could be the closest thing to a national education system—as opposed to a school system--yet developed. The project is devoting itself to the development of all three categories of non-school systems for making educational activities available to the people of Ecuador.

The debate as to how centralized and coordinated such a "national" network should be will continue for some time. The project is operating on the philosophy that at least for now the lack of a single coordinating agency is desirable and in fact has a number of advantages. The problems of relying solely on centralized agencies, whether government or private, include at least the following factors: their capacity and penetration is often severely limited by shortages of personnel and resources; the population is not homogeneous and large segments are routinely discriminated against; there is a lack of continuity in programs; approval is needed from above before action can take place; and

almost inevitably, solutions and problem definitions come from a centralized or even an external agency. The result of these characteristics is usually the reinforcement of behaviors of dependency and passive acceptance of things as they are on the part of the recipients of services.

As an alternative, the project seeks to stimulate the creation of a *community-based demand* system, where people become aware of themselves as resources, and where communities begin to develop the skills required to interact with agencies already present. People develop a set of *survival skills:* the ability and willingness to approach the appropriate source of information or material and the techniques needed to get a reasonable hearing from organizational representatives, politicians or educators. Too often existing programs tacitly depend on the fact that only a small percentage of the population knows that they exist, and even fewer know how to gain access to their services.* Large scale development of such skills would readily reveal the inability of the government to cope with such demands and would necessitate creation of additional approaches. Hence the focus of the project on self-generation of resources and skills and the value placed on involvement and participation. The combination of self-reliance and ability to make use of government capacities may provide the best hope for educational and economic development.

Summary

This paper has sought to outline the development of the non-formal education project in Ecuador. In the first part the basic principles upon which the project is based are articulated. Next, the criteria used in seeking out new methods are discussed and a series of short examples are given of the three types of materials currently being used. The last section focuses on the difficult problem of delivery sytems for the materials. The project's commitment to multiple, complementary systems is discussed, and current progress along those lines is indicated.

The note definitely describes a project in process rather than a finished product. The project has been in existence for a fairly short time, and many of the ideas are in a state of flux. The techniques and methods being used by the project are felt to be different enough from most other approaches to make an interim progress report valuable to others striving toward the same goals. The authors hope that these ideas will stimulate teacher training institutions to begin experimenting with an ever increasing variety of approaches which will help teachers become genuine community resources.

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*In developed societies the same problems exist. Note, for instance, the following examples currently available in our own society: The New York Times guide to federal programs for officials of small towns and a published booklet of blank cable forms addressed to appropriate officials in New York City.

THE RELEVANCE OF NON-FORMAL STRATEGIES FOR THE RENEWAL OF TEACHER EDUCATION

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Introduction

Some of the lyrics of a currently popular song run:

> It's sad to think
> We're not goin' to make it;
> And it's gotten to the point
> Where we just can't make it.

This very sad song could start one wondering if some of those school dropouts in Africa do not say the first two lines the moment they enter school and only after a few days, or perhaps months in some cases, they reach the last line of the stanza. About those who manage to stay in school, teachers complain about their laziness, sloppiness and general lack of interest in schoolwork. Perhaps they, too, most times feel like the dropouts but continue, as the lyricist does, to say:

> I keep on wondering
> What I'm going to do
> Without you;
> And I guess you must be
> Wondering the same thing too.
> So we go on,
> Go on together . . .

Exaggeration? Perhaps. But the feeling is there, and those who have experienced traumatic discontinuities between home experiences and formal school lessons might remember it. It is the purpose of this paper to explore non-formal and indigenous education approaches in order to identify key components which might minimize discontinuities between home and school experiences.

Education occuring outside the formal school has sometimes been described as "out-of-school" education,[1] other times as "non-formal"[2] and still other times as "indigenous"[3] or "informal."[4] As viewed from these works, out-of-school and non-formal education are to a large extent formal education which takes place away from the usual schoolroom under instructors who are products of the formal school system.

Non-formal education has had a chequered history. Boesch described an early experiment in Thailand:

> As early as 1902 the Thai government tried to revive and strengthen the silk industry . . . by technical assistance. Japanese experts were brought in to survey the industry and to give instruction to home weavers as well as to teach in a school which was established in Korat. Experiment and demonstration stations were set up, and Japanese experts brought in modern looms on which they gave free weaving lessons to the villagers. Meanwhile, several hundred girls had graduated from the silk school, and new equipment was imported and distributed

> by the government. After several years, however, it was noticed that the silk exports had not increased, and raw silk imports were no smaller. An investigation revealed that the silk weavers had completely rejected the new methods, that the graduates of the school had promptly dropped all they had been taught when they returned to their villages and that the new equipment supplied by the government was stored away in attics and barns.[5]

Rogers and Shoemaker reported an educational project on water boiling in a Peruvian village:

> A two-year water boiling campaign in Los Molinos, a peasant village of 200 families in the coastal region of Peru, pursuaded only eleven housewives, who are the key decision makers in the family, to boil water. From the viewpoint of the health agency, the local hygiene worker, Nelida, had a simple task: to pursuade the housewives of Los Molinos to add water boiling to their pattern of existing behavior. Even with the aid of a medical doctor, who gave public talks on water boiling, and fifteen village housewives who were already boiling water before the campaign, Nelida's program of directed change failed.[6]

There are points of significance related to the above examples. Boesch noted that traditional Thai weavers in general used crude equipment, and the Japanese approach observed basic technical aid procedures—initial surveys were carried out, schools and demonstration centers were utilized, materials were available and successful trainees returned to their villages—yet the scheme failed. It failed because it did not take into consideration the Thais' traditional equipment or the indigenous educational relationships between young people and adults in the Thai society. Similarly, the housewives of Los Molinos knew their cultural constraints associated with water boiling. Besides, there were also material constraints which made them view Nelida as a "dirt inspector" sent to "press already harassed housewives into keeping cleaner homes."[7]

Notwithstanding the failures, there have been apparent successes. Boesch described the successful efforts of one individual where the Japanese had failed:

> Thompson has successfully put Thai silk on the world market, and at the same time has revived interest in traditional patterns and types of cloth, and induced weavers all over the North East to use fast dyes and to produce for scale [sic]. He has made few changes in the traditional methods and tools of weavers, however. The major changes in technique introduced by Thompson have been the use of fast dyes and flying shuttles. The latter device enables workers to increase their output considerably.[8]

In the United States a successful project was carried out in Georgia:

> In Greene County, Georgia, as was the case throughout the cotton plantation area of the South prior to World War II, most tenant families had a diet of fat-back pork, corn meal, and sorghum molasses. In the early 1940s hundreds of low-income farm families in Greene County were convinced to can an average of nearly 500 quarts of food per person each year. Several hundred farm families in the county received loans and supervision from the Farm Security Administration, a government agency, to aid them in adopting the innovation. Most of these families were farm tenants who had canned only an average of twelve quarts per family prior to 1939 . . . They increased their canning to an average of 225 quarts in 1939, to 350 in 1940, to 386 in 1941 and to 499 in 1942.

Mhina described the activities of the Kibaha Education Center in Tanzania. *Inter alia*, he wrote that the Center existed:

(1) to promote agricultural development,including the provision of academic and practical courses in agriculture and food production;
(2) to train members of the public in public health and environmental hygiene;
(3) to train and to provide training facilities for medical students, nurses and rural medical aids in preventive as well as creative medicine, public health and environmental hygiene; and,
(4) to provide a secondary school in accordance with Government policy.[9]

The Center has institutions including the farmers' training center, the training health center and the rural development department.

> The Farmers' Training Center is giving direct agricultural education on better farming methods to farmers; this is preferable to the old method of training extension workers who in turn go to teach farmers in the villages . . . The Health Center likewise employs the technique of giving health education to peasants.[10]

According to Mhina the Center now is fully integrated into the Tanzanian community. At the beginning, however:

> two likely sources of adverse reaction were anticipated. First dispossessing local people of the land where the project buildings were to be erected. A very fair and adequate compensation was decided for the houses, fruit trees and developed land acquired . . . The second source of adverse reaction was expected from the Nordic public, either by not approving the type of buildings for the project center as very expensive and palatial, or by using Nordic architects and denying local architects the opportunity. This was dealt with by using simple building plans; although these plans were made by a Nordic firm, the contractors were all Tanzanian, many on-the-spot changes being made to make the project buildings part of the Tanzanian scene.[11]

A brief analysis of these projects might bring out some of the common elements responsible for their success.

(1) There was demand for the services before the projects were started. This was true in Thailand where the Thai Silk Company took it upon itself to procure the services of Mr. Thompson; in Tanzania it was not difficult at the time of independence to show that formal education was not geared toward rural development and that poverty and disease were common; the housewives in Greene County knew they needed a way to preserve their fruit for the "off season."

(2) There was a strong association of the projects with the lofty ideals of the target population. The Thai Silk Company and the Tanzanian government were very highly prestigious institutions, and they gave unwavering support to their respective projects. In fact they influenced them and identified them with national ideals. In Greene County, food canning became so prestigious that "many families kept their jars on display in the parlor or guest room or shelves around the kitchen."[12]

(3) Care was taken not to introduce very strange and radically new equipment. Thompson, especially, introduced only minor, even though significant, technical improvements which could be handled by every weaver thus obviating the need for special schools. It was, therefore, possible for him to work directly with the traditional weavers without the mediation of extension workers. In Tanzania, too, it was possible to work directly with farmers and with peasants. In Greene County, the housewives themselves did the canning using equipment with which they were familiar.

(4) Traditional elements were incorporated into the non-formal education projects. Thompson, for example, did not only retain but also encouraged traditional patterns and designs; in Tanzania even the buildings retained traditional features.

(5) An underlying theme in these seemingly successful projects is the critical importance of identifying common frames of reference between the change agents and the target group which would establish vital functional communication links otherwise not possible. The onus of establishing these links belongs to the change agent because he has to adapt to the target group.

(6) Another very significant feature of projects that achieve depth in terms of acceptance, resource extraction and allocation is that they do not concentrate on marginal cases. Marginal cases are usually false indices of success; it is known, for example, that Nelida could have claimed success on that basis alone because she did succeed with those housewives who, because they were marginal in the community, were anxious to secure social acceptance from her. This explains in part how some projects with potential educational mileage might not gain complete acceptance.

(7) As long as non-formal education projects rely heavily on products of the formal schools for leadership in instructional programs, there is always the likelihood that there will be a reliance "on the classroom lecture approach, as opposed to demonstration, and their lectures often dwell on basic general information."[13] That should not be surprising because, after all, lectures are part of the excess baggage that formal schooling carries.

Indigenous Education for Adulthood among AmaXhosa

AmaXhosa are an indigenous African group in Azania (otherwise known as South Africa). In spite of their subjection to foreign domination, they are a very coherent group with a very robust culture. Their indigenous education is quite distinct with clear-cut stages throughout childhood and adulthood but very intensive and marked very clearly at the formal transition stage in adulthood.

The "teachers" in indigenous education are the older people in the society. Among amaXhosa this is true of any group of people or children. If a group consists of four-year old children and one five-year old child, the older child carries the major leadership responsibility for the group at the point he is with the group. The scope of the leadership is necessarily limited to the breadth of responsibility expected of a given age group. For example, while a five-year old might not be expected to anticipate feeding needs for his younger mates, a fifteen-year old would be expected to demonstrate appropriate and wider sensitivity to, and considerable empathy with, his or her group of four-year olds. Interesting situations occur when there is no age difference among members of a finite group. In such cases the members are held responsible collectively. With groups of older persons, however, seniority is by marital status and other criteria. This very sketchy account of leadership responsibility allocation signifies that, among amaXhosa, indigenous education from childhood onward aims to enable everyone to assume leadership responsibility in the education of younger people. In the case of girls, at no other time is this education at once more integrative and intensive than in their preparation for housewifery and motherhood. Since this stage parallels that of the preparation of teachers in formal schooling, it is described in greater detail.

In the Xhosa custom a girl never gives a direct "yes" to a marriage proposal. In general, if she agrees she would say "ask my parents." The young man would understand this answer not only as affirmative but also as an invitation to send his family's representatives to look her over in context, i.e., to get a firsthand assessment of the girl's capabilities in her family. Thus begins a process of sharply focused education.

Representatives of the future husband's family (which in this paper will be referred to as the target family) visit the future wife's home (now to be labelled the reference family) for a day or two to ask for the girl's hand in marriage. They are encouraged by the reference family's representatives to describe the qualities of this "mythical" girl they

presume belongs to the reference family. Afterwards they are told that there is no girl of that sort in the family but that in fact all they see are only young and immature girls who are still learning to take care of themselves, let alone take care of others.

Towards the end of lengthy discussions, the visitors are waited on by the future wife (usually unannounced), and she later joins the conversation which, by this time, is on topics of general interest. Later, discussions go on only among the older people and for the first time the girl's father speaks in this manner:

> You have seen for yourselves gentlemen that in this home there is no girl who is ready for marriage. The one you wish should be your wife is only a toddler. You spoke to her, you tasted the food she prepared, you saw how she guides the younger children, you heard her voice and observed her manner towards adults; you know how she looks like. She needs a great deal of education yet. You can now go home and think the whole matter over. We shall hear from you.

After giving a full report to the target family, the representatives give an assessment of the girl and advise on a program of activities over a definite period culminating in a wedding. The advice might be: "she needs more time at home; she needs to grow a lot more; let us adopt a delaying approach;" or "she is ready now; tell her people we wish to proceed." Supposing the last statement is the case, a messenger conveys the decision and returns with the news that a reply will be brought.

Representatives of the reference family visit the target family. While there, they study the new home thoroughly—the daily routines, the relationships among the family members, the position and roles of each member and of their future son-in-law (especially his manner) and a host of subtleties. They evaluate all the information they have gathered against the entire cultural background and the personal characteristics of their daughter. On the day of their departure they are invited to give the message they have brought. It is at this point that they give an honest evaluative account of their daughter; that account was arrived at largely on the basis of the girl's self-evaluation under diagnostic guidance by an experienced family relative. The visitors would end with an affirmative invitation to the target family to view them as partners in the future growth of the two young people.

It is not necessary here to recount preparations for the wedding and the wedding festival itself. But part of the further education that follows immediately after the wedding is worth noting. The last event before departure from the bride's home is a gathering where elder people from both families, in the presence of the young couple and their retinue, describe in detail the education the couple has received. Each past phase and its significance in adulthood are explained. Most importantly, their attention is drawn to the fact that they will soon be parents and will, therefore, be trustees of the education of future adults.

After the wedding festival, two girls ("escorts") from the bride's group remain with her for a week. The escorts are usually her peers as well as her closest friends—one is usually a relative. In the new home the three of them wear "respect" sashes and help one another in running it.

As a rule, all the living in-laws would also be present, especially the mother-in-law and the sisters-in-law. It is to them that the three young women become apprenticed for a week, after which the two girls return home. In that week intensive indigenous instruction takes place. The wife learns from the example of the "women of the home" how to treat each member of the family including her husband and each set of relatives, the rhythm of the activities in the home, approach and avoidance situations and about the sources of guidance available to her. Her escorts learn all these things with her. They

will later give a full report to the wife's parents who will decide whether there is any necessary reinforcement of the education they gave their daughter before she got married.

After a week, the new wife is no longer accompanied as she goes about. She knows, however, that as situations she has recently learned about keep recurring, help is always available. What she learned was not too new to her, as she worked with her brothers' wives (if any) and as she assisted her own mother. What is really new now is that she is learning to play a broader role than those she had previously played. In due course, she volunteers to take on responsibilities which would normally belong to her mother-in-law. At the same time she learns to suggest (ever so subtly) to the younger members of the family to take over some of her minor responsibilities. Decisions on these matters are entirely her own and are based on her judgment.

There are other earlier educational stages not dealt with in the description given above. Although some of them involve development of leadership and teaching skills, they are not as intensive and as completely set aside for that purpose as the education for motherhood among amaXhosa is. Some of the key elements in this education might be noted:

(1) All indigenous education among amaXhosa is aimed at developing leadership responsibility. This pervasive objective is based on the knowledge that all adults will have to exercise that responsibility, even if in varying degrees.

(2) To a large extent the education takes place in contexts which correspond to situations in which decisions will normally be made. Thus the need to transfer all learnings from the "school" context to the "life" context is minimized.

(3) Young people learn very early that all older people are useful resources for the development of confidence, self-reliance and problem-solving skills. In a broader sense, they learn to rely on more than one source for the enrichment of their learning experiences.

(4) A great deal of emphasis is laid on the integrative aspects of knowledge and on making decisions on the basis of solid evidence. At the same time, the young people learn to develop a keen sensitivity to the needs of others.

(5) Perhaps one of the most significant aspects of indigenous education is the maintenance of strong lines of communication between the home and the target situation in order to make the development of the young people not only complete but also appropriate. After the transition stage, the links become even closer to facilitate continued growth.

(6) Coupled with the emphasis on learning about fruitful ways of dealing with the environment is the development of a capability for honest self-evaluation. It is believed that self-appraisal is a critical aspect of development into adulthood.

Lessons for Education of Teachers

This paper has attempted to highlight the more desirable strategies of non-formal education and of indigenous education. This final section attempts to extract some aspects which could be utilized in the formal education of teachers.

(1) Ideally all teacher candidates should enter the training college with a strong desire to serve as teachers. Since that is not always the case, ways of inculcating that ambition should be devised. It might be very useful to associate the profession very closely with lofty national goals with the State taking active steps to identify the teaching profession with national and individual aspirations. In Tanzania where the President of the Republic is called *Mwalimu* (teacher), this initial step has been taken already.

(2) Instructional strategies and decisions should minimize the role of "middlemen" and, instead, make firsthand experience the primary strategy. In the successful non-formal programs farmers and peasant, for example, worked directly with the specialists without extension workers serving as middlemen. In teacher education, as well, the teacher candidates would work with children and schools directly most of the time without their instructors serving as middlemen but rather as an additional resource.

(3) The education of teachers is essentially an education for leadership. For such education to be successful in the framework of non-formal and indigenous education it must be carried out in appropriate contexts, by persons who are recognized publicly as leaders, in a style that is consonant with significant cultural approaches to learning and must bear direct and undisputable relationship to matters of central concern to the population. Education for leadership consists in educating people to know themselves—their strengths and capabilities; it does not teach people that they have answers to all problems but that they know how to look for answers; it inculcates the idea of "provisioning" for oneself instead of relying on others to do so; most of all it enables those who do not eventually become leaders to appreciate the roles of leaders and of an informed citizenry.

(4) Participation not only in the actual activities but also in the preliminary stages of decision-making is crucial. In the indigenous system even a five-year-old finds himself in decision-making situations and although differences in responsibility might be qualitative, the essential features do not differ in degree. An important lesson for the formal education of teachers is this minimization of discontinuities between different stages of decision-making.

(5) In most American societies age is a significant factor; the younger a person, the more marginal he might be regarded in terms of breadth of perception of responsibility in society. Teacher education programs could take this into account by utilizing the services of adults recognized as leaders in indigenous education. It is to such adults in the community that the young teachers would be "apprenticed." The teacher education college could then be viewed as an arm of the recognized traditional institutions.

(6) Provisioning is a critical factor in all education for leadership. Successful provisioning consists in the creation of learning environments which stimulate learners to "search and discover."[14]

Conclusion

The colleges' promises of taking into account the needs of indigenous communities in the education of teachers are not enough. What is needed urgently in Africa is concerted action for the creation of opportunities for young and old to interact productively in the development of appropriate curricula for colleges of education. Individual efforts of subject-based organizations will at best be incomplete until there is a mechanism to relate, coordinate and integrate their development activities; until there are teacher education institutions which are committed to charting useful pathways for human development programs rather than for subject orientation only.

Footnotes

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[3] Asavia Wandira. *Indigenous Education Among the Buganda.* Kampala: Makerere University, 1971.

[4] Madison J. Seymour. "Contrasts Between Formal & Informal Education Among the Iban of Savawak, Malaysia," *Review of Educational Research.* Vol. 42 (Fall 1972), No. 4, pp. 477-491.

[5] Ernst Boesch. "Adapting Education to Society," *Education.* Vol. 1 (May 1970), pp. 43-44.

[6] Everett M. Rogers and F. Floyd Shoemaker. *Communication of Innovations.* New York: The Free Press, 1971, p. 2.

[7] *Ibid.*, p. 6.

[8] Boesch, *op. cit.*, p. 44.

[9] J.E.F. Mhina. "The Kibaha Education Center in Tanzania," *Educational Innovations in Africa.* The Hague: Ponsioen, 1972, p. 98.

[10] *Ibid.*

[11] *Ibid.*, pp. 100-101.

[12] Rogers and Shoemaker, *op. cit.*, p. 119.

[13] Sheffield and Diejomaoh, *op. cit.*, p. 125.

[14] Daniel Chaytor. "Planning for the Future: The Return of Search & Discovery into Science Education in the Schools," [*Sierra Leone*] *Journal of Education.* Vol. 8 (April 1973), No. 1, pp. 7-14.

III
THE APPLICATION OF TECHNOLOGY TO THE EDUCATIONAL PROCESS

During much of the 1960s there was much interest in the application of communication media for education. The inconclusive and expensive nature of such experiments has prompted educators to closely examine the skills and knowledge necessary for introducing educational technology effectively into educational programs. Coladarci's examination of these concerns, and evidence from projects in the LDCs, prompts him to be both cautious and optimistic. It is clear that traditional, even marginally improved and expanded schooling, cannot ameliorate the problems of education, but with the highly reliable and sophisticated new communications and instructional systems that are being acquired by the LDCs, it is obvious that educators have an opportunity to push further experimentation and application.

In many school systems educators take the narrow view of educational technology and see it in terms of its threat to their own dominance over the learning environment. Where media are being utilized, they are used almost exclusively to supplement instructional or presentational functions. As such, they represent a significant input to the teaching process—such as the use of film to reinforce a concept or a picture to clarify a situation. Film projectors, television, and video-taping, overhead projectors and audio-cassettes have greatly expanded teaching-learning possibilities in learning situations. Unfortunately, such media have been accepted in name but often not in application. In contrast to this narrow view, is the description of the Ivory Coast program which indicates new or expanded uses for hardware and their ability to reach a wider and more diverse teacher-student clientele.

In some innovative teacher training programs, media are now being used in a broader array of educational activities. These range from the use of video-taped vignettes of real school situations for diagnostic purposes, computerized or programmed modules for self-instruction and video-taping of teaching performances for subsequent self-analysis. Ridden's description of the microteaching program at the University of Nairobi represents successful ways that media can be utilized in EPP.

Certainly the São Carlos Program indicates how media can be incorporated into, and utilized throughout, teacher preparation programs. Educational technology represents that which is a direct result of systematically carrying out and evaluating the total process of learning and teaching in terms of certain highly specific and defined goals and objectives.

TECHNOLOGY, TEACHING AND SANITY

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"Things are in the saddle and ride the back of mankind," wrote the American poet, Emerson, in 1946, and a large proportion of contemporary educators in diverse tongues cry "Amen and Alas! " as they try to avoid or escape from the cold electronic clutches of modern instructional technology. This paper is addressed to such educators—to their disquietude and their long winter of discontent with "the things of learning," to use a recent engaging nomenclature.[1] However, lest these few sentences and my tribal membership mislead you, I must warn that I come not as a protecting and comforting knight-errant but to point a stern, reproving finger at those who teach and those who teach teachers.

Educational Technology Is Booming

During the past two decades we have witnessed gigantic developments in the development and application of electronic instrumentalities for learning, together with the "software" accouterments.[2] The rate of this development has increased exponentially through the present and can easily be projected to continue undiminished into the foreseeable future. Major funding and sponsoring agencies (e.g., the United States Agency for International Development, UNESCO, the United Nations Development Program, the World Bank) have included instructional technology in their major agenda. Many countries have instituted or are instituting national ETV systems, among them two particularly interesting ones on the African continent—Ivory Coast and Niger. A spate of literature and specialized journals in instructional technology has emerged in all major languages. Well-funded research in this general field has been carried out and continues in universities, centers and institutes around the globe. The vocabulary and grammar of education are heavily infused with the terms, metaphors and logics of engineering, electronics and mechanics.[3]

But

The foregoing comprise a sample of phenomena suggesting that instructional technology is clearly among us, large and hyperactive, is presumed to be helpful and represents a considerable investment of capital, time, energy, intelligence—and sometimes passionate commitment. And, yet, as one observer notes:

> The claims that educational technology would serve as a catalytic agent for overall educational reform—upgrading the quality of instruction, reforming curriculum, reaching large numbers of students, equalizing educational opportunity and reducing unit costs of instruction—with few exceptions have not materialized. School systems and educational opportunity . . . remain essentially the same. There has been some expansion and incremental reform, but few fundamental changes in the philosophy, structure, content and outcomes of schooling.[4]

Or, again, in the language of James Koerner:

> In the 1950s predictions were widely and confidently made that education by 1970 or 1975 would be revolutionized by technology—that is, by the new technologies of communications that are generally lumped under the name "educational technology." Leaders and so-called futurists from the knowledge industry, from government, from education, and, I regret to say, from foundations joined in these rosy prognostications. Lately this enthusiasm has given way to embarrassment and disenchantment, as many a corporation has found its Edsel in educational technology. The metaphor is imperfect. The Edsel at least ran; the public just wasn't buying. Educational technology to date cannot be said even to "run."[5]

Clearly, there appears to be a contradiction between claims and performance and an extensive gap between promise and achievement. Two executives of the Ford Foundation, which has supported and plans to continue its support to instructional technology, wrote earlier this year that "[d]espite the depth of feeling that [instructional technology] evokes and its increasing prominence, the field is enshrouded in vague definitions, hazy purposes and murky evaluation."[6] The ETV analyses conducted by Carnoy, an economist specializing in educational development, indicate that, in both cost-benefit and cost-effectiveness terms, it is difficult to define the results of most programs thus far and among his findings is the following: "... the cost of ETV schooling is much higher per pupil than classroom teacher schooling, and the performance of pupils is not significantly or consistently better when teachers are simply retrained to use more effective curricula.[7] Teacher retraining costs are usually a small fraction of the cost of operating an ETV system."[8]

What is wrong? Why has a huge mountain labored so hard to produce only a few mice? The diagnoses are many—some of them relevant, others probably self-serving rationalizations. It is charged, for example, that teachers are not adequate to these electronic gifts from heaven. This may be true, but I am mindful of what the humorist, James Thurber, once said: "A word to the wise is not sufficient if it doesn't make any sense." Some feel that the difficulties arise from meanly motivated promoters of the hardware, who pursue their mission with fanatic zeal. There probably are too many such salesmen, who fit nicely the definition of a fanatic as one who does what he knows the Lord would do if given all the facts of the case. Another diagnosis is that both educators and technologists have been more fascinated with the medium than with the message. And so on through a long series of suspicions.

Of the relevant criticisms, let me briefly mention only two, which I select because they pertain centrally to the argument I wish to make about the classroom teacher's role in all of this: (1) While the hardware of instructional technology may be universally relevant and exportable, the content and process (i.e., "the software") is not; yet a substantial number of early ventures in educational technology (and some even now) involve content and processes defined by persons in Culture-X for application on persons in Culture-Y. This surely is a losing game. (2) The second diagnosis is not unrelated to the first. It is what Robert Locke calls "the cart-before-the-horse approach" to instructional technology: "instead of concentrating so single-mindedly on *products* for sale to schools, we should concern ourselves with the *processes* by which skills and knowledge are acquired."[9] In another place, he joined with Engler to add that "very little . . analysis . . . had been in terms of how well [technology] can be adapted to an instructional strategy that takes into account the differences in learning style and rate."[10]

The two criticisms, then, are that technology in education often has been an irrelevant intrusion, addressing instructional purposes other than those entertained by a

particular school and with assumptions about learners that do not fit the particular learner characteristics confronted by the technology in a given time and place. These deficiencies are remediable; they are not inherent limitations of the medium—as is witnessed by the developmental work of Wilbur Schramm and the research efforts of Patrick Suppes, to mention only people at my own institution with well-earned international reputations in this field.

Nonetheless, despite increased pedagogical piety and prayer, a critical *lacuna* remains—the intelligent participation of the teacher. I now turn to the gravamen of my concern and to the stern reproving finger promised in my initial comments.

Nostra Maxima Culpa!

My thesis is simple—perhaps arrogantly so: (1) Since the effectiveness of instructional technology is a function of its ability to engage specific intended schooling outcomes in specific contexts and with specific learner background and process characteristics, the teacher (who resides in and arbiters these specificities) must be centrally involved. (2) On the other hand, teachers generally tend to have somewhat the same mindlessness about the teaching-learning process as the "technologists" whom they decry, suspect, criticize and fear. If I am somewhat correct on the second statement (which is frankly exaggerated), the difficulties with instructional technology are merely a microcosm of a fundamental and continuing deficiency in our profession.

We are told that teachers resist engagement with the new technologies, that they fear and are threatened by them, that they see in them a dissolution of the "essence of professional being."[11] I interpret that this "resistance" and "hostility" of teachers often is generated out of the inadequacy of their frames-of-reference for the act of teaching. As a particularly perceptive instructional technologist notes, "[t]he reason so little instructional technology is used in education today is that its visible faults always end up being compared with the teacher's invisible virtues."[12] Without an explicit, defensible frame-of-reference, any instrumentality will be seen as wanting and as an unwelcome intrusion. Those of us who teach or who prepare teachers have culpability and responsibility.

A Path to Secular Salvation: Teaching as Hypothesis-Making

Having pointed the finger of criticism, I am under some moral obligation to be constructive. What frame-of-reference is required to the intelligent conduct of an educative act? The answer comes with the question: *any* frame-of-reference that is explicit, rational, critical and reasonably exhaustive of the phenomena called "teaching." Immodestly, and for what it is worth, I suggest one that I have described earlier and elsewhere.[13] I find it useful. Whether others do or not is less important than that it may clarify my concern and prompt the development of alternative satisfying paradigms for teaching—whether the teacher is a warm-blooded human or an impersonal bit of hardware-software. I offer, then, a paradigm for which I call "a normative conception of the educative act." It is frankly a description of what *should be* rather than *what is* characteristic of teaching behavior. As I said earlier, it is simple—much too simple for this audience, but I ask for your tolerant patience while I sketch it out. While I shall make little or no reference to educational technology in what immediately follows, please bear in mind that I consider the absence of this (or an alternative) rational frame-of-reference precisely what is most difficult—producing in the effective application of technology to instruction.

Any frame-of-reference involves some stipulations and assumptions. In this case two must be made explicit: a distinction and a controlling assumption. My controlling assumption is the logical principle that empirical predictions can have only *probable*

validity—they cannot be statements of certainty. While that assumption may be tolerable to all, you probably will not share the next stipulation—in which case you will simply have to go off and develop your own frame-of-reference based on the formulation you prefer. I refer to the distinction between "teaching" and "learning," terms and processes so often confused and confounded in educational discussion as to make constructive thinking most difficult. The distinction is between what is *intended to be learned* and what *is in fact learned.* Both phenomena occur in any educational enterprise, but the first (the intentions) are the starting point—or so I assume. That is to say, "teaching" is an *intentional* act; someone's intentions are involved. Clearly, as Cremin notes:

> What is taught is not always what is desired, and vice versa; what is taught is not always what is learned, and vice versa. Moreover, there are almost always unintended consequences in education; indeed, they are frequently more significant than the intended consequences. Hence, educational transactions are often marked by profound irony (John Calam noted one such irony in *Parsons and Pedagogues*. The Society for the Propagation of the Gospel in Foreign Parts mounted a massive educational effort to hold the American colonists to kind and church, and thereby spread literacy at precisely the time the colonists were being innundated with a literature of revolution).[14]

My assumptions, then, are that the educative act, whether mediated by a person or a machine, must be seen as an intentional act and of a probablistic nature—the latter point I will elaborate later.

I conceptualize this educational act as comprising four simultaneous dimensions, all of which must be present conscionably at any instant in time if teaching is to be effective.

The Purposes Dimension

The first dimension of the educative act is suggested by the stipulation that the educative act is intentional and, more specifically, that it is assumed to be instrumental in generating desirable changes in the behavior of the learner. By definition, therefore, a *sine qua non* in any professional action of the teacher is a conscious awareness of what he considers these desirable expectations to be. Or, to put this in more familiar language, the responsible educator is always acting in terms of educational purposes that he considers worthy.

But desirability is not the only requirement for the purposes dimension; the educator's awareness of the desired expectations must also be clear. The necessity for clarity and the difficulty of achieving it are frequently underestimated. You can satisfy yourself on this point by examining the educational objectives, written or verbalized, held by a teacher at any grade level in a local school. The odds are that you will find the statements highly generalized and ambiguous in nature—statements which, to rephrase Gilbert and Sullivan, "say nothing in particular but say it very well." Considerable clarity is needed to illuminate effectively the specific decisions, judgments and procedures comprising education. Such clarity is not achieved easily and is found only rarely. Its absence seriously precludes the rationality of the educative act. Some of the greatest failures of modern educational technology occur because clear and agreed upon purposes have not been set forth.[15]

The Procedures Dimension

Another salient dimension of the act of educating encompasses the actions performed by the educator to bring about the changes in his pupil that his purpose

proposes. That is, this dimension comprises the procedures the educator undertakes, expecting that they will result in the desired learning. What are they? The answer is fairly obvious in some cases: for instance, planning lessons, assigning homework, selecting curriculum materials and grouping pupils for instruction. Others, such as smiling—or frowning—at a pupil's response, planning the new school building and sending periodic reports to parents, may be less obvious. All these, however, are rational decisions deliberately made in light of anticipated changes in the behavior of the learner.

Such an orientation is far from representative of the way in which teachers actually behave. Many educators, as distinguished from our ideal one, see no necessary relation between some of their procedures and the purposes dimension. It is this very discontinuity between procedures and purposes that obscures the relevance of research and suggests the need for the kind of conception of the educative act that we are now elaborating.

Thus far, then, we have identified two logical dimensions of the educative act: the kinds of changes desired in pupils, the purposes dimension; and the instrumentalities introduced by the educator to bring about these changes, the procedures dimension. At this point our ideal teacher would verbalize any given moment of teaching thus: "I use this procedure because it will help the pupil change in these directions." However, our hypothetical relationship is not yet clear. Something is missing—the justification for assuming that the particular procedure will result in the desired learning.

The Information Dimension

Why does the educator use some procedures and not others when he is attempting to bring about a particular kind of change in the behavior of a learner? We can quickly dismiss random selection as an explanation for this choice, since such an explanation would be psychologically naive. Presumably, rather, the educator uses a particular procedure because information on hand leads him to conclude that it may be effective in generating the particular behavior changes he desires. The body of the information that generates dimension varies a great deal in kind. It includes, for instance, the teacher's recollections of his previous experiences with educational methods, reports of the professional experiences of other educators, generalizations produced in behavioral and biological sciences, recommendations of experts and implications of a particular theory of human behavior. The information also varies with respect to level of specificity. On the one hand, it includes propositions about learners and learning in general, and, on the other hand, it also involves highly particularized observations about the specific characteristics and idiosyncrasies of a given pupil, school and community. All these generalizations, experiences and data used by an educator to justify an educational procedure consititute the information dimension of the educative act.

With the addition of this third dimension, our ideal teacher would verbalize any given moment of teaching in a somewhat different way: "This information (information dimension) suggests that this procedure (procedures dimension) will lead to the achievement of these purposes (purposes dimension)." Although this formulation of the act of teaching goes beyond the recipe approach, it is not yet a professionally responsible one. Before the conception becomes intelligent, it must be cast in terms of a crucial characteristic of the information dimension. At this point we turn to what is the defining core of our conception of the educative act.

How certain can the educator be that his procedure will result in the particular behavior change for which he hopes? The answer to this question may be intuitively obvious: The educator cannot be certain that his procedure will be effective. But why? An immediate explanation lies in the present status of our knowledge in the behavioral sciences. As I noted earlier, present knowledge about learning and the conditions that produce learning is far from adequate. However, there is another and much more basic

reason for this uncertainty in the educative act—the assumption that prediction has only probable rather than certain validity. This assumption, which stipulates an important qualification regarding the nature of the information dimension, permits us to conceptualize the educative act as an act of inquiry.

The problem can be stated as one involving the phenomenon of prediction. The purposes dimension of the educative act—that is, the behavior changes desired, refers to events that have not yet occurred. The educator, at any moment of the educative act, is attempting to bring about behavior not present in the learner. He is predicting that his procedures will produce the desired changes in the pupil. Now, what can we say about the validity of prediction? As was noted before, although we sometimes can speak with certainty regarding something that *has* occurred, logically we can only talk about the possibility of the future occurrence of an event.

Furthermore, the information dimension in the educative act consists mostly of statements of probability. Even the very best research in psychology, for instance, does not purport to tell a particular teacher, in a particular situation, with particular purposes in mind, what will happen with his particular learner; it is the teacher's task to make an inference about the probability of its truth in the specific situation. If this is so, what can we say about educational procedures? Clearly, if the information dimension consists of probability statements, and if the teacher is attempting to predict for a future situation, the conclusions drawn by him regarding the best methods for achieving his purposes are themselves probability statements.

Statements about teaching procedures must, therefore, be thought of as predictions of probable value and probable effect. The educator's operations are hypotheses and, like any hypotheses, have to be tested in the crucible of experience; they cannot be assumed to be valid. The value of any operation is not fully known until we determine the extent to which it actually is associated with accomplishing the specific purposes to which it is assumed to be relevant. Furthermore, a particular educational procedure retains this hypothetical character even if it has been demonstrated to be effective for other persons and in earlier situations. In effect, then, any educational decision or procedure, at the moment of application, must be viewed with tentativeness. Although the procedure, at that point, is an empirical hypothesis—that is, it predicts something will happen—the results are not yet known. The degree of confidence that the educator can invest in this procedural hypothesis attests to the clarity of his educational purposes, the reliability of the information used and the adequacy of the inductive and deductive logic he used to connnect the two.

With this understanding, our ideal teacher now would revise his verbal description of his conduct at any given professional moment in this manner: "On the basis of this information, I hypothesize that this procedure will lead to the achievement of these behavior changes."

The Measurement and Evaluation Dimension

Given the hypothetical nature of the educative act, the final dimensions of our conception emerge necessarily. If we accept the argument that educational methods are to be thought of as hypotheses, we are obliged to assess the degree to which these hypotheses are good ones—that is, whether the methods result in the behavior changes expected. The rigorous testing of hypothesis is frequently a complex procedure and may require knowledge and time usually not available to the educator in a classroom or administrative office. However, the responsibility for initial and provisional evaluation of these educational hypotheses can be assumed consciousably by any educator. He may determine the degree to which the hypothesized behavior changes manifest themselves in

the behavior of pupils. If the expected and hoped-for changes are found to follow the procedures used, the educator has no immediate reason to reject the procedures, although (and this is an important caveat) he should not conclude that the changes occurred because of the operations he performed. If, on the other hand, the expected changes do not occur, or do not occur in the degree anticipated, he may conclude that the hypothesized procedure was inadequate under the given conditions. He then reexamines the logical process by which he formed the hypothesis, including the question of whether he had sufficient relevant data at the time, and formulates a new hypothesis.

The educator who does not assume this responsibility for evaluating the adequacy of his own procedures is left with no rational basis for modifying his procedures or for knowing that he should modify them. The alternative is to rely on dogma, authority or luck. Such uncritical reliance, however, is markedly incongruent with membership in any profession.

Assessing educational hypotheses involves two identifiable operations: first, determining the status of the learner with respect to the behavior change in question and; second, evaluating the adequacy of this status. The first is the operation of observation and measurement; the second, the operation of evaluation. To state these operations in another way, the first is concerned with what change has taken place in the learner, and the second asks whether the change is consistent with the directions specified in teaching objectives and in sufficient degree. The distinction may help to make clear an important implication of our paradigm of the educative act: The basic professional relevance of measuring school achievement is that the data produced enable the educator to evaluate his own procedures and to modify them, if necessary. This is not the usual stance taken by educators. Unfortunately, too many of them see the measurement of achievement and the evaluation of this achievement as relevant only to the obligations of judging the pupil and informing the pupil, his parents and the school records of this judgment.

A careful study of the foregoing discussion will show that the educative act can be thought of as comprising an uninterrupted cycle of inquiry. The educator, with a clear awareness of the behavior changes desired and the most reliable information available, hypothesizes some procedures that are probably effective in producing the behavior changes. These procedures are put into effect; the behavior changes in the pupil associated with, and following the use of, these procedures are noted and compared with the changes expected; if the expected behavior change does not occur or occurs in insufficient degree, new hypotheses are generated, using all available data, including the new information produced by the measurement and evaluation operations; these new hypotheses are put into effect—and so on, without end. Those of you who are familiar with Michael Scriven's distinction between summative and formative evaluation will recognize the latter in what I have just said.

So What?

What has my little model to do with technology, teaching and sanity? I suspect that you have inferred the answer already. In order to stay professionally sane, one must think of the technology of instruction as belonging in the procedures dimension of the educative act. It is an instrumentality of the educators' intentions and, as such, must be rationalized in terms of the educators' purposes, utilized in terms of local learner characteristics and evaluated in terms of the degree to which the intended learnings occur. However, such is not typically the case, and I attribute the current low effectiveness of technology to the absence of an *educative* rationale in its use. Those who promote, install and operate these technologies are often to blame for a serious naiveté about teaching and learning. But more culpable are the teacher trainers who prepare teachers inadequately.

Unless teachers are helped to develop a rational conception of teaching, which makes them *participants* in the process of developing and evaluating professional knowledge, technology (whether television or book) will continue to be a loser in any cost-benefit analyses—and schools will continue to be at the mercy of the latest glib promoter of the latest electronic gadget.

Footnotes

[1] James W. Armsey and Norman C. Dahl. *An Inquiry into the Uses of Instructional Technology*. New York: The Ford Foundation, 1973.

[2] I am mindful of the current confusion in definitions of instructional technology, many of which (happily, in my view) do not restrict themselves to "electronic." Although the technology can include everything from Abacus (through Book) to Zenith, it appears that pedagogical anxiety and resistance surface particularly with reference to those that carry arcane and esoteric impulses and currents—principally television, the computer and their mutant offspring.

[3] The initials for computer-assisted-instruction (CAI) rapidly became a proper noun in educational conversation. During a recent visit in Spain, I found that it has also become a transitive and intransitive verb.

[4] Robert F. Arnove. Bloomington: School of Education, Indiana University, 1973 (Unpublished Paper).

[5] James Koerner. "Educational Technology: Does It Have Any Future in the Classroom?" *Saturday Review of Education,* (May, 1973), p. 43.

[6] David E. Bell and Harold Howe II. "Introduction," *An Inquiry into the Uses of Instructional Technology. Op. cit.,* p. ix.

[7] Martin Carnoy. "The Economic Costs and Returns to Educational Television," Palo Alto: Stanford School of Education, Stanford University, 1973 (Unpublished Paper).

[8] *Ibid.*

[9] Robert W. Locke. "Has the American Education Industry Lost Its Nerve?" *Journal of Educational Technology.* Vol 1, No. 2 (May, 1970), p. 112.

[10] Robert W. Locke and David Engler."Instructional Technology: The Capabilities of Industry to Solve Educational Problems," *To Improve Learning*, Vol. II. New York and London: R.R. Bowker Company, 1971, p. 916.

[11] David Berkman. "The Learning Industry and ETV," *Educational Broadcasting Review*. Vol. V (June, 1971), No. 3, p. 24.

[12] Hugh Beckwith. "Innovations in Industry Likely to Affect Instructional Technology During the Next Ten Years," *To Improve Learning. Op. cit.,* p. 851.

[13] Arthur Coladarci. "The Teacher as Hypothesis-Maker," *California Journal for Instructional Improvement.* (Spring, 1959), No. 2, pp. 3-6; Arthur Coladarci. "The Relevance of Psychology to Education," *Foundations of Education*. New York: John Wiley and Sons, 1963, pp. 388-410.

[14] Lawrence A. Cremin. "Notes Toward a Theory of Education," *Notes on Education.* New York: Institute of Philosophy and Politics of Education, Teachers College, Columbia University, June, 1973, p. 5.

[15] Armsey and Dahl. *An Inquiry into the Uses of Instructional Technology. Op. cit.,* p. 7.

TECHNOLOGY AND THE IMPROVEMENT OF EDUCATION IN THE IVORY COAST*

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Introduction

In 1969 the legislature of the Ivory Coast voted to create a new type of normal school to train a new kind of primary school teacher. This was the first step of a basic reform designed to modify the philosophy, structure and techniques of education in the Ivory Coast. There had been little change in Ivorian education from Independence (1960) until the reform was announced.

The reform was to be premised on the creation of a model normal school, the *Ecole Normale d'Instituteurs* (ENI), in Bouake, and the establishment of several *centres d'animation et de formation pedagogiques* (CAFOPs) throughout the Ivory Coast. These institutions were established to prepare school personnel who would be familiar with teaching techniques which appropriately accompanied television instruction.

Parallel to the creation of these new institutions, the Ivorian Government, with considerable external donor assistance, invested much of its resources in the creation of a far-reaching educational television (ETV) project. ETV is to be used to transform Ivorian primary education with the help of new types of school personnel.

This article will limit itself to describing the process of identifying, selecting and preparing school personnel to work in the primary schools of the Ivory Coast with ETV.

The First Three Years of the Bouake Project

Following three years of effort, the ENI at Bouake seems to have achieved much success. In spite of the transitory nature of the personnel at Bouake and the constant experimentation with new structures, curricular approaches and programs, there has evolved a teacher preparation program that fits within the overall efforts of the Ivorian Government to transform education. What has resulted is an institution that has retained its essential purposes as a teacher training institution while shifting its entry requirements and its program emphases.

Today the students enrolled at Bouake are being recruited from among teacher-aides who have had at least three years of experience working in schools. In this way the ENI has changed from a school for initial preservice teacher training to a center for improving the teaching competencies of more experienced educational staff. It is believed that such a shift, with a more mature and experienced clientele, known as *Normaliens*, can also result in a shortening of the training period from three to two years. This training period, although very short, can be sufficient to obtain lasting results, provided that the two-year cycle is seen as merely the point of entry into a permanent process of cultural and professional development.

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*Translated from the French by Mrs. Meteki Deressa.

Such a permanent process seems predicated upon developing in the preservice teachers an awareness of the methods of self-instruction. Such an effort requires emphasis on the methods of intellectual work and on the techniques of information gathering. The implications of the latter seem to be that every teacher must be given access to various information-giving media or a document center. Individual work is stressed at the ENI and is considered one aspect of the *Normaliens* self-development. Types of individual activities include intensive study of the subjects, independent research projects and tutorial sessions. The tutor acts as an advisor or counsellor to assist the student in achieving continuity and coherence in his training.

The counterbalance and complement of individual effort is group work. The personal effort comes first in the gathering of data, in preliminary thought, in preparing the foundations of discussions or, at a later stage, as an effort to get beneath the surface, to refine the idea. If individual effort consists in the acquisition of knowledge or solitary reflection, group effort involves verification by critical confrontation or mutual enrichment through the exchange of ideas. This is where the notion of motivation comes in as one of the key ideas in the new system of instruction.

A parallel effort of the ENI is to assist in reorienting traditional Ivorian perceptions of the teacher-student relationship. Teachers are generally thought of as being omniscient, authoritarian and complacent, while students are passive, uninquisitive and uncritical. The Ivorian way of overcoming such perceptions has been the use of multi-media to replace the lecture system as the way of conveying knowledge. Use of closed-circuit ETV, the language laboratory and various other media at the ENI assists the *Normalien* in gaining a new perspective on teaching. The teacher, though diminished in his role as a dispenser of knowledge, nevertheless remains indispensable by aiding the student in restructuring the subject and by providing him with the conceptual framework that is the foundation of his studies. In this way, one returns to the new tasks of motivating and tutoring which restore the teacher to his authentic role of educator.

The redefinition of the functions and roles of the *Normalien* automatically implies a new definition of the teacher education professor. Aside from serving as a guide and counsellor to the *Normalien*, the professor or tutor at the ENI fulfills a certain number of specific duties of which three are essential:

(1) to construct work plans, determine objectives and refine them in terms of behavior patterns; program the various kinds of practice teaching experiences;
(2) to objectively evaluate performance and devise the tools of evaluation; and,
(3) to produce, in collaboration with colleagues or with the *Normaliens*, documents of varied types, e.g., programmed learning materials, guides to self-instruction, reports, demonstrations, audiovisual documents, etc., and make full use of these.

No motivator-instructor could perform all these jobs by himself at once—all the more so as these activities demand a serious effort on the part of the tutor himself. Therefore, it is necessary to divide the staff and assign them a specialization determined not by subject but by abilities and interests. As a result, the notions of competence and responsibility of the ENI professor are expanded—which has its effect in the timetable and in the conditions of work.

Each tutor works twenty-four hours a week. In a general way, and subject to change if the circumstances should require, these twenty-four hours are distributed in the following ways:

(1) fourteen hours of training (teaching, motivating, tutoring); and,
(2) ten hours of additional activities which are devoted to:

—planning practical ways of integrating these activities;
—planning, evaluating or producing the above-mentioned (in this area, the instructors must hand in a "finished product" to the director on the date due); and,
—undergoing their own retraining and upgrading.

The ENI is currently in a transition stage. In the Summer of 1973, there were two classes of ENI Old-System (called ENI 2—with 63 students and ENI 3—with 67 students) who were finishing their three-year study cycle; and a class of the New System (called ENI 1—with 49 students) was beginning their two-year training cycle.

Thus, taking on its new role, the ENI has as its major goal the preparation of future teachers for the professional tasks that await them. Indeed, it is not certain that all the theoretical information given the *Normalien* has immediate value for teaching, particularly as to how to conduct a class. The problem lies less in changing the percentage of time spent on theory *vis-à-vis* practice, but rather in creating a system of continuous training, which in turn enables the *Normalien* to observe or participate in actual school situations and in situations of reflection and theorization. The diagram, reality-thought-reality, underlies the basic structure of continuous training. Theoretical information is derived as an answer to a question which develops out of the analysis of a professional situation. Easily absorbed by the *Normalien* who feels it necessary, this theoretical information is immediately reinvested in classroom practice which enables him to master and improve his knowledge.

This appears to be the way to better integrate the "cultural" with the "professional" in a training program designed to achieve its objectives.

The Two-Year Program of Training

The process of taking students experienced in schools was initiated at the beginning of 1972 as part of a policy of accelerating the process of educational reform. The Ministry's letter of October 4, 1972, had set certain new objectives to be achieved through educational reform. These were to include:

(1) the integration of the school with the environment;
(2) the preparation of children to successfully enter adult work and cultural activities;
(3) the modernization of French language instruction;
(4) the development of activities to arouse interest and to encourage self-expression;
(5) the introduction of an integrated scientific education;
(6) the introduction of modern mathematics; and,
(7) the modification of the teacher-student relationship.

The main instrument of this reform is educational television. There is also the need to introduce, in all classes, those innovations that do not require television.

The Bouake is to (according to the Ministry of Education's circular letter of March 4, 1972):

— enable teachers to acquire new behavior patterns that the reform demands—which entails abandoning all authoritarian and dogmatic attitudes;
— make teachers aware that schools must cease to be urban enclaves in the villages, but that they must be integrated with the environment in order to prepare the child for active life;
— secure for the teachers full possession of that essential instrument of communication—the French language—written and oral;
— give them the foundation of modern mathematics so that they may acquire new behavior patterns and new materials necessary for teaching this subject;

- enable them to teach an integrated scientific approach related to the economic and social development of the country; and,
- finally, give the teachers the requisite foundations of a permanent cultural advancement by enhancing the elements of the national culture.

The ENI and Inservice Education

Since November, 1972, teachers in primary schools throughout the Ivory Coast have been retrained by means of a long-distance system of education put into practice under the supervision of the ENI at Bouake. This involves a combination of approaches including group work, radio and television broadcasts accompanied by documents published by the press. Participation is required of all teachers in public education and is part of their weekly duty; Wednesday afternoon is set aside for this purpose. The number of teachers currently participating is estimated at about 2,500.

The Bouake ENI produced in 1972-73 is a thirty-minute television program twice a week; and, for schools lying outside of television range, two radio programs of thirty minutes each were prepared and presented. In addition, at least twenty-four pages of learning materials were published in "Brotherhood-Weekly" every two weeks in the form of a supplement entitled *Permanent 'Ecole Normale.'* After a slow beginning, according to a survey of elementary school districts, an estimated sixty-six percent of all teachers now have subscriptions. This supplement, with a circulation of about twenty thousand, will continue to be published during vacation periods.

Television, however, is the principle instrument for this effort at educational renewal. It is important to note that the introduction of radio to reach schools outside the range of television is in itself a significant innovation of the program. It is estimated that this medium reaches fifty percent of the teachers. This effort will gradually diminish as ETV expands its operation; nonetheless, the systematic use of radio offers new opportunities to explore.

Conclusions

After a few months of operation, although the feedback system is not totally functional, it now seems that a two-year training program, even for people with school experience, is not enough to obtain the desired goals and that the training efforts should be extended to three years.

Regardless of the length of time devoted to this preservice training, much effort must be devoted to the continuous training of teachers thus giving the *Permanent 'Ecole Normal,'* as it is already called, its full meaning.

One Year Training of Teacher-Aides

The teacher-aides from which the ENI draws its clientele are prepared in Centre d'Animation et de Formation Pedagogiques. These instructions attract candidates who have completed the first cycle of their secondary education and who wish to receive one year of professional training and are then certified as *instituteurs-adjoints* (teacher-aides). There are currently seven CAFOPs in the Ivory Coast with 860 teacher-aides in training.

The CAFOPs are trying to train in sufficient quantity and quality the professional staff for educational television. Professional preparation is deliberately emphasized. This principle, retained in the initial program of the CAFOPs, is strongly reaffirmed today. For one thing, the training period is short (eight months of actual study), and it is important

to eliminate everything which does not contribute directly to this training. Moreover, the CAFOPs must appear more and more as "professional schools" in order to discourage those who merely want to improve their general education so as to compete for more advanced education. That is not to say that the CAFOPs neglect the general education of their students. The language laboratories in particular facilitate the improvement of a student's use of French. Student-teachers are also encouraged to read, and considerable effort has been made to develop the CAFOP libraries. Thus an effort is made to motivate the students culturally, but the primary object remains professional training. At any rate, this preparation implies a relative mastery of the language which, in turn, renders possible a permanent improvement of the teacher. The learning of French at the CAFOP must "give the student-teacher the desire and the means to pursue a training which enables him to effectively fulfill his role in class, in school and in the village."

The desire to induce the teacher to continue improving has led the State Secretariat to insist on personal effort. "Special attention must be paid from the beginning to individual effort. The motivation of the group which requires previous work by the individual finds (in personal effort) its main justification." (Circular letter No. 3000691 SEEPTE/DE 1 of March 7, 1972).

An important part of the motivator's work, therefore, consists in training the prospective teacher-aide to do research, to define objectives, to gather data, to construct work plans, to improve the tools of observing the class and to evaluate his own work. For the first time in the CAFOP timetable there is a place for methods of working on documents of all kinds—written, recorded, visual and audiovisual—which teachers are using more and more to prepare classwork as well as to improve their teaching. The intention is clear—to lead future teachers to be real intellectual, self-responsible persons. This would encourage them to continue teaching themselves.

Organized groups of fifteen to eighteen student-teachers work in each institution (eight groups per CAFOP). The workweek of each pre-teacher aide consists of an average of thirty-six hours. These hours are divided into time spent working under supervision, time devoted to retraining and private and individual study. The main schedules of the different activities are calculated for the year, but the time devoted to each activity varies according to the stage of professional training. At first, the accent is placed on defining objectives, on guided observation of the class and on researching desirable professional behavior patterns.

The student-teachers must then train in a laboratory and finally take over a modernized or television class. Audiovisual methods can be utilized in a much more systematic manner, in professional training, as soon as a closed circuit television is functioning in each CAFOP. Television would allow the last stage of change to be reached in the CAFOPs fully enabling these institutions to train the staff to apply the new programs of primary school ETV.

According to the instructions of the State Secretariat, which anticipates a significant connection between initial training and permanent training, Wednesday afternoon is set aside for viewing the programs broadcasted to teachers in training.

Conclusion

All the evidence indicates that the Ivory Coast has embarked upon a highly significant transformation of its teacher education system. The success of the transformation ultimately rests on the teacher who has left the training college and who must rely upon his interest, abilities and effort to seek continuous training. Indeed the ideas of "initial training" and of "retraining" must disappear little by little in favor of a conception more flexible and more adaptable to the needs of an educational system in the midst of change: the conception of continuing education for all educational personnel.

EDUCATIONAL TECHNOLOGY AND TEACHER TRAINING IN CONTEMPORARY SOCIETY

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If we were asked to express in one word what best describes modern man we might very well say *change!* Until recently we assumed that each generation would live amid the conditions governing the lives of their fathers and would then transmit those conditions to mould the lives of their children. Today even the least developed of societies is in a state of change unimagined only a few decades ago. While the word change can be used to describe the act, process or result of changing and has no ascribed goodness or value to it, it has come to be associated with the positive transformation of society or culture. For almost every individual or society change is thought of as being feasible and desirable.

Perhaps one reason for the faith people have in change is the pervasive character of change. We have come to recognize that a society is a living unity of various institutions and that a change in any one aspect of a society will have repercussions in other aspects. This is true even in those societies which, in the process of very rapid change, are torn by conflicts and contradictions. Indeed change only has meaning when used to describe the nature of relationships between various aspects of a society.

Let me refer to some recent changes (transformations, modifications, alterations, etc.) in one Latin American country to show how change in one aspect of a society affects other aspects. Five basic characteristics of modern Brazil which are inextricably linked to one another and which, in turn, affect the education profession are:

(1) a demographic explosion that has increased the population of Brazil from some 94 million to 100 million in the two-year period 1970-1972;
(2) the accumulation of new knowledge which promises to help in the solution of societal problems but which also requires specialization and cooperation in contrast to older life styles;
(3) a growing complexity within Brazilian society that requires discreet task and role performance *vis-à-vis* a traditional livelihood where each person was dependent upon themselves;
(4) a rapid rate of urbanization (the fastest in Latin America) which results in tremendous dislocation and tension as people live closer together and demand greater participation in decisions affecting their own lives; and,
(5) a change in communication patterns with more and more people living closer and closer together in a more complex social environment in which there is need to effectively interact with one another. While this characteristic is derived from other factors, it is so important because it totally involves the lives of modern man. In fact we can see this change through the increased sophistication of communication patterns and in the increase in the use of symbols. If this is *abstract communication*, we see it also in new patterns of *emotional communication* in which there is an increase of social perception and circular emotional reactions. We also see it in the breakdown of older sexual mores and increased reliance on sexual symbols to convey ideas and meanings. This we can call *erotic communication.*

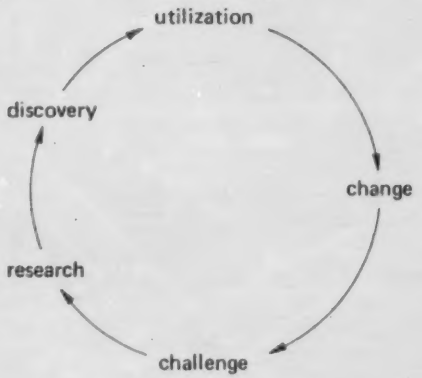
> At the same time we recognize that there is a growing cultural "story" that has to be passed onto succeeding generations to give continuity and a sense of integration to the society. This we can call *didactic communication.*

The implications for the education system in a society undergoing such change are significant. Organized schools will have to cater to larger and larger numbers of young people who will want to remain for longer periods of time to acquire the new knowledge to function in a modern society. Increased specialization will require differentiated kinds of learning opportunities while increased urbanization will necessitate the ability to interact together in the resolution of common problems. Such interaction will require more sophistication in the use of new symbols and their processing and application.

The problem that modern man faces is whether to be a participant in the change process or to resist social change. Generally, man's attitudes are shaped by the institutions of a society. Such institutions can be proponents of change while others, which represent the crystallized mores of a society, oppose change. Both kinds of institutions seek to influence the ideas and values of the participants in the society so that there are internal antagonisms and tensions within societies. Often educational attainment and social position seem to influence one's attitudes toward change so that the possibilities of and for schools relative to change must be understood.

SOCIAL CHANGE–WHAT CHANGES?

If we wanted to represent the process of social change in a scheme, we might do it as follows:



Social Change Takes Place Within A Cycle

Although we know change is imminent, the exact direction that it will take is an unknown, and the unknown is a challenge that stimulates research. Research leads to discovery. The results are utilized. Utilization brings change in the lives of men, and this leads to new challenges.

With the evolution of technology, the time and space lag between discoveries that evolve from research and their practical utilization is considerably reduced. Changes are sometimes so forceful that a new cycle takes place.

We feel many times that in such a process there is no time for philosophical reflection. This is the antinomy–we are using technology before we even appreciate it from the normative point of view; before we can establish a hierarchy of values.

What are the educational implications of use without reflection? Of an action devoid of critique? Or, to bias the question from an educational standpoint, what are the consequences of a hardware without a software?

We are forced to think about some commitments expected from social institutions—such as schools—in a changing world. Schools have to respond to antinomic stimuli. On one side they have to be guided by social tradition. They are responsible for the preservation and transmission of the culture. On the other side all progress comes from a rearrangement of society—from creativity. Schools must stimulate such innovations and act as catalysts for shaping new kinds of society.

But schools are operated by people—by educators in general and specifically by teachers who are accountable to parents and the community. The problem becomes one in which communities often seek to maintain the status quo while the world around them is changing at an ever-increasing rate. So the institutions responsible for both preserving and changing are caught on the horns of a dilemma—whether to preserve or to change and if they elect to change, to determine in what direction they should guide and direct such change. Therefore, all these reactive behaviors are to come from teachers.

The Teacher and Teacher Education

Traditional methods have proven to be totally inadequate for the preparation of teachers.

We are all in agreement that methods and processes must undergo change as technology is introduced. There is evidence that this has occurred in most aspects of society. One of the notable exceptions is teacher training.

Teacher education in contemporary society becomes a fascinating problem particularly when we ask, what should be the role of teacher education in contemporary society? In contrast to many who suggest the problem relates to the inherent conservatism of the people who become teachers, I believe that is a result of the very nature of the teacher learning process. Teacher education involves planning, but planning is hindered by such factors as:

- the lack of experimental research in education for teaching;
- the length of time needed for a follow-up of the educational phenomena;
- the tendency to project one's own experiences.

The first step in planning is the setting of objectives. But before we even set objectives for teacher education we should look at the teacher.

- Who is the teacher in a rapidly changing country?
- How does a society in rapid transition see the teacher?
- What is expected from the teacher in the LDCs?

Before attempting to deal with these questions, let me indicate some fundamental points. In countries such as Brazil we must distinguish between three categories of teachers:

- elementary school teachers;*
- secondary school teachers;
- university teachers.

I believe the fundamental problems of conservatism and lack of planning are particularly critical at the secondary school and university levels.

*In fact, since 1835 we have had in Brazil special first grade teachers' training schools. The Normal School of Niteroi was the first public school in America for training elementary teachers.

Traditionally and universally (because this is not just a Brazilian phenomenon), secondary and university teachers have been neglected in their training or preparation. For at least the last two or three decades teachers were frustrated "dropouts" from other professional areas. Unable to succeed in their own area, they turned to teaching. In an effort to meet the needs of such people, schools of education were created in Brazil's universities. The first of these Faculties of Pedagogy and Philosophy or (schools of education) was created in 1939. In the time since then this structure has been introduced into sixty-two Brazilian universities.

Though these schools represented an important step in improving Brazilian education, their background and purpose has led to the false technicalization of teachers. In such programs great importance was placed upon certain techniques and principles, but the content or subject matter was frequently neglected. As a result, the teacher was supposed to be at one and the same time a psychologist, an audiovisual specialist, a counselor, an administrator and, of course, a scientist. These tasks took precedence over mastering the content of a discipline and keeping pace with new discoveries and findings.

At the same time economic conditions forced secondary and university teachers to work in more than one institution at the same time or to have different jobs. As time went on, the cultural level of such teachers was impoverished. They could not cope with innovation.

There are many of us in Brazilian teacher education who are seeking to change this situation—to prepare teachers who can cope with change and innovation.

In this brief paper we shall describe the Federal University of São Carlos plan for teacher training. At São Carlos we started from some fundamental standpoints and followed by building a coherent structure with these basic ideas.

Positions

It seems to us that teachers are now viewed in a "medieval" way. That is, the general trend in the preparation of teachers is to make teachers able not only to teach, but to guide, counsel, research, produce protocol materials, operate devices, etc. Naturally teaching is a complex activity, involving many other ones, but all these manifold aspects cannot be carried on at the same productive level.

Let us look at another professional as an example and this may help us to understand the problem confronting teachers. No one would suggest that a surgeon should make the blood and urine tests, anaesthetize the patient, disinfect the operating room and assist the patient's recovery. We take it for granted that a surgeon is a specialist who works as part of a team of other specialists; and we are perfectly aware that surgery will be successful if each member of the team works according to his ability as a professional.

Notwithstanding, we resist considering the teacher as a professional. We cling to the old Middle Ages idea of master. In the European Middle Ages, when professional guilds or corporations were organized, we also had professional education. In such education we could distinguish three grades: apprentice, journeyman and master. To obtain the master degree, one has to prove one's skill producing a work from the first to the last step. If someone wanted to be a carpenter or a weaver or a shoemaker, he had to submit his work to the corporation. Supposing that his first work (*opera Prima*) was an exquisitely carved table—from the choice of the wood to the lacquer formula—the work was his. He was the teacher.

This is the way in which we continue to consider the teacher. But it is obvious that progressive differentiation of culture has taken place, and this concept of mastery can no longer exist. Why should we cling to this idea in relation to the teacher?

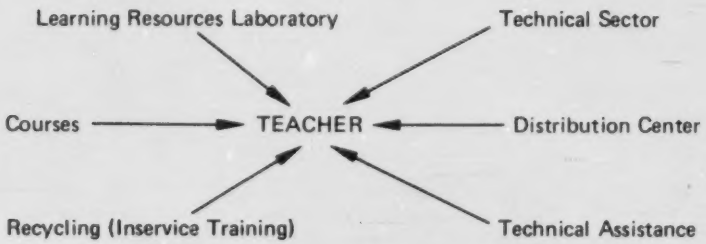
Let us now turn to the São Carlos model and see how we have sought to overcome the medieval idea. First, let us deal with a notion that helped to shape our program objectives and structure. This is the application of technology to the educational process and, specifically, to teacher education. The underlying ideas include:

(1) The preparation of teachers must adhere to the general lines of a systems approach.
(2) The preparation of teachers must be considered a sub-system of a larger one—a sub-system of social development.
(3) Productivity must be sought through continuous evaluation.
(4) Educational technology is not just hardware.

As you can see we have already passed the cultural moment at which the word technology meant apparatus and devices and the expression educational technology meant only media. We have already left behind the days when educational technology had dangerous mechanistic, automatic and robot connotations. Today, in Brazil we all agree that educational technology is related to the whole concept of education. Technology is more of a philosophy of education—a standpoint—than it material equipment. Having said this, let us begin with the teacher training system at São Carlos.

Figure 1

Components of the São Carlos Teacher Preparation Program



Let us begin our analysis by looking at the various components. First let us look at the courses.

(1) *Courses.* Teachers are communicators. They are responsible for softening the impact of cultural change. They must codify and decodify reality to make it accessible to their students. Teaching is a part of a great social communication system. The basic idea of the courses is to teach preservice teachers through new techniques. We are convinced that it is more important to do this than to discuss this or that discipline's place in a school's curriculum. We, therefore, attempt to make future teachers familiar with new techniques and methods.

In contrast to many teacher preparation programs which only describe educational technology but never expose their students to its use and application, São Carlos has used the following:

– programmed instruction;
– group work;
– verbal interactive behavior; and
– micro-teaching.

In order to use these processes effectively, the teaching staff uses them in their own preparation.

The dynamics of social change is a powerful pressure on teachers as communicators. In fact, not only must teachers seek cultural renewal, because they must be acquainted with new discoveries, but they also have to update their communication techniques. New media cannot be ignored, particularly since teachers are many times forced to use hardware available in schools while they remain unfamiliar with software. Another argument in favor of introducing teachers to both hardware and software is that it would be unjust to deprive teachers of powerful communications techniques and media when other areas use them successfully.

(2) *Recycling.* The Federal University at São Carlos has special inservice programs for both the staff of the university and for teachers all over Brazil. They are called ARTE (Arualização e Reciclagem em Tecnologia Educacional). In its general lines the ARTE is an intensive training in the above mentioned techniques and methods carried on during periods of five to eight days.

Some efforts have been made since last year to extend the ARTE project scheme into a National Inservice Training Center.*

From July, 1970, to July, 1973, twelve ARTE projects were successfully carried on.

(3) *Distribution Center.* In a fast-growing country the labor market relative to the teaching profession presents some peculiar problems. In a rough way we could say it operates just the opposite of the job market in countries which have attained a higher level of development. This is evidenced by the fact that in some countries there is already a surplus of teachers while in others there remains great demand for qualified professional educational personnel.

In addition, there are great disparities in the placement of qualified teachers in urban and rural areas. One reason for this uneven concentration is that the teacher training school does not keep track of the professional. All links with the school are cut once the student becomes a fully licensed teacher.

The Distribution Center is intended to remedy this situation. It keeps a file of former students—where are they working, under what conditions, etc. There is also a file of the regional schools and their needs for future teachers. Not only is there an effective response to a community need, but there is also a very important feedback provider for the whole system. Furthermore, it gives the student a realistic insight into regional and, to a certain extent, national labor markets.

(4) *Learning Resources Laboratory*. When we think of special kinds of communication, we have to think of media. These are organized in the Learning Resources Laboratory.

Modern didactic communication involves hardware and software. One problem is that hardware and software cannot always be harmoniously combined. Common sense has identified technology with hardware, but sophisticated hardware does not bring forth quality as a natural consequence. On the other side, no effective teaching can be thought of independent of media.

But hardware is always throught of as something we must buy. So, it is expensive and not everyone can have it. We seldom admit that media can be produced. And when we talk about media, we do not project our thoughts beyond an overhead projector. We don't think of books as media, nor do we think of a computer as a teaching device and something that acts merely as a logistic and retrieval tool.

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*In 1972 the Minister of Education of Bolivia asked for an ARTE project for Bolivian teachers. This was the ARTE X and it was developed in January, 1973, for 300 teachers in La Paz by staff from São Carlos.

The philosophy of the Learning Resources Laboratory is that media consists of a whole set that ranges from books to computers. And we must think of a laboratory as the Latin origin of the world suggests: labor=work. A laboratory must be a place to idealize, to make, to operate and to produce.

We actualize this in many ways including the Production Office (a place whose main function is to offer services to the other sectors or schools). Thus, sets of slides, programmed textbooks, kits, are sold, given or rented to teachers, community schools or other agencies. It's a hardware pool, but the use of hardware is directed by technique and creativity.

Let us quote Robert Wagner about motion pictures and think about media:

> Most theorists who have contributed to the best thinking and writing in this field describe motion pictures in education as noncinematic, pedantic, ineffective, produced by amateurs or unimaginative professionals for unimaginative educators who simply use dull films as substitutes for dull lectures.[1]

(5) *Technical Assistance.* Teachers seldom come back to their training schools for help. Once they get their certificate, the school cuts all links with the teachers. Problems and difficulties are either solved by the teacher or postponed.

The maintenance of a section of the School of Education to carry on technical assistance seems to be a great help for new teachers. Besides giving them real help, it is a powerful liaison between the teacher training school and the new professional.

(6) *Technical Sector (STE–Seção Técnica de Ensino).* All systems must be evaluated. This is the guarantee of the maintenance of the system's productivity level.

The basic problems of productivity can be stated as follows:

– more
– better
– with less effort
– in less time.

But there are difficulties assessing productivity using these guidelines. It is not easy to evaluate in a precise way how we are working and to what extent we are attaining the objectives of teacher training. It is evident that a teacher training system's productivity cannot only be evaluated quantitatively, but that such an evaluation must take into consideration qualitative assessment.

This is done by the Technical Sector (STE) of the School of Education. It evaluates teaching activities through:

– a critique of the teachers' plans
and
– a critique of the practical results.

This is done by keeping files of all teaching activities and using statistical procedures relative to such data.

It also evaluates the instruments, which means to say that tests are validated before they are used by teachers. This is intended to reduce subjective factors in the teachers' evaluations of students' performances. Before a test is given to the student, the teacher submits the model to the Technical Sector and, following specific procedures, it is delivered. Thus, many problems are solved at once.

The teacher knows the liability of the instrument he is using. The student knows his performance is being assessed by reliable instruments. And, more than this, many discussions and arguments become unnecessary and fade away, and personal feelings are not hurt.

Relative to teachers, critical revisions are done periodically, and we have real data to assess the training staff's performance.

All data stored, processed and assessed by the Technical Sector is used in research works dealing with teaching methods and productivity of teacher training processes.

We can summarize its function as follows:

– to plan new forms of evaluation;
– to control effective learning by students;
– to collect and process data concerning teaching problems;
– to suggest remedial action for low performances; and
– to provide effective feedback for the whole system.

The Technical Sector is so significant that, in 1972, the Ministry of Education suggested that each university should initiate their own Technical Sector, and decisive steps are being taken to accomplish this.

Conclusion

The systems approach to teacher training, as described above, leads to evaluation and productivity as a natural consequence. The system is oriented to having good teachers and good teaching as an output. Thus we see the key elements of the system's operation to be:

– the Technical Sector;
– recycling (inservice training); and
– research as the foundation of technology.

The above summary of the Federal University of São Carlos' education program is what Brazilian educators are thinking nowadays. It is also what Brazilian educational government agencies, through the Ministry of Education, are working to achieve.

Footnote

[1] Robert Wagner. *To Improve Learning*. London: R.R. Bowker, 1970, Vol. I, p. 23.

MICROTEACHING IN THE EDUCATION CENTER OF THE UNIVERSITY OF NAIROBI

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Introduction

The case for microteaching as a means of developing the practical competence of teachers has been well stated in professional literature during the last decade by educators associated with teacher training institutions in the United States, Canada, the United Kingdom, Europe, Australia, the Philippines and Israel. Notably we have the publications of Dwight Allen and his associates at Stanford University, W.R. Borg and his co-workers at the Far West Laboratory for Educational Research and Development, of N.A. Flanders of Michigan University, A. Perlberg of Illinois, D.B. Young of Maryland, Perrot and Duthie of Sterling, E. Stones at Birmingham and G.A. Brown at New University of Ulster.

In Africa programs have been developed since 1968 in teacher training institutions in Botswana, Lesotho, Swaziland, Zambia, Malawi, Sierra Leone, Nigeria and Tanzania.

In Kenya, a pilot program influenced by these overseas and African developments was introduced for students taking the Post Graduate Diploma and Adult Studies courses in Education at the University of Nairobi. The courses, designed and organized by E. Jacobsen and J.F. Heaps, were begun in the 1970/71 Academic Year after M.W. Pritchard, the Chief Technical Adviser of the UNESCO Project, and J.F. Heaps attended the UNESCO Conference on Education Technology in Paris. The microteaching course for postgraduates was based on lessons of two types: demonstration lessons and Stanford-type skill lessons. It was used as a support for block teaching practice.

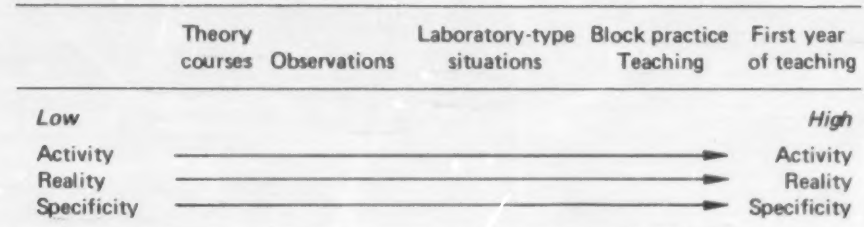
In July-August, 1972, the rapid increase in faculty enrollments and with it an equally rapid escalation in the cost of providing block practice for all students aspiring to be teachers led the Faculty to conduct a critical examination of its practice teaching arrangements. About this time also, R. Sanderud, the Chief Technical Adviser of the UNESCO Project, and W. Ridden, the UNESCO Expert in General Methods and Practice Teaching, attended a special overseas UNESCO Conference where the use of new methods such as microteaching for the development of the practical competence of teachers was discussed. The Faculty, therefore, decided to ask Dr. Ridden to develop a new microteaching program for the first year B.Ed. students as well as the Post Graduate Diploma of Education students.

The result was the microteaching program with well-defined objectives and characteristics which was taken by about 180 B.Ed. students and 32 Post Graduate Diploma of Education students enrolled in the Faculty.

Objectives and Characteristics of the Microteaching Program

The program had five interrelated objectives:

(1) the provision of a laboratory-type environment which would enable students' preparation for teaching to be more active, more real and more specific in coping with problems of teaching methods;



(2) the cultivation of a positive (favorable) student-teacher attitude towards the use of new media and techniques in his teaching and new methods of evaluating his growth in professional competence;
(3) the provision of a common set of concrete teaching experiences which would enable the student-teachers to integrate theoretical knowledge gained in their courses and apply it in the solution of practical problems of lesson preparation and presentation;
(4) the growth of the participants' abilities to identify, analyze and use some patterns of teaching behaviors which are essential in effective teaching;
(5) the provision of favorable conditions for student-teachers to practice and learn the skills required for the competent performance of these essential patterns of teaching behaviors.

The microteaching program was centered around a small number of highly significant and real teaching tasks: the selection and statement of instructional objectives; planning a lesson using appropriate procedural steps; using instructional media efficiently; getting effective pupil participation; and introducing and concluding a lesson well.

In their preparation and presentation of micro-lessons, students were encouraged to see themselves as preparing to use a teaching strategy and then performing this strategy effectively to achieve specific objectives. In this process, they were encouraged to focus their attention on the techniques of the strategy and to see themselves as practicing these techniques in ways that would develop the necessary skills required for their efficient performance. For example, a micro-lesson designed to enable pupils to discover a mathematical rule might require the planning and use of a restricted questioning strategy. In the performance of such a complete or whole strategy, the student-teachers would focus attention on practicing the techniques of framing a sequence of restrictive questions, reinforcing answers and reacting to terminate and thereby habituate the requisite psycho-motor skills for their performance. This wholistic approach may be contrasted with one in which the student-teacher is asked to practice the technique of reinforcement, or of establishing set or of achieving closure. The latter approach leaves the student-teacher with the problem of orchestrating his techniques and applying them later to real problems of teaching.

In establishing conditions which would enable the student-teachers to obtain a critique of their performances of lesson strategies and techniques, the guiding aim was to assist them to develop their competence in self-evaluation—a prerequisite to the ultimate goal of all education, the development of the independent learner. Such conditions included:

- involvement of students in micro-lessons as pupils (peer teaching);
- training students to use the appropriate audiovisual equipment in recording their micro-lessons and protocol material;
- requiring students to evaluate the lessons of their peers using the microteaching guides;

- involvement of the students in the critiques via the use of group discussion techniques;
- providing for student leaders to arrange for the reviewing of lessons for their group members using the audio tape or video tape recordings of them; and
- discussion of protocols illustrative of strategies and techniques with individuals and groups by supervisors.

Organization of the Microteaching Program

In order to comply with Faculty requirements, each student must participate in two periods of practical teaching or be exempted therefrom. For the 1972/73 B.Ed. students, the microteaching program counted as one of these periods of practical teaching.

On the basis of his performance during a period of practical teaching, each student is awarded a grade on a five-point scale. This rule was applied to the student's microteaching performance although such an assessment is difficult to make and controversial though perhaps no more so than for a block teaching practice.

- Two introductory one-hour lectures were given to all B.Ed. participants. The first, dealing with the nature of microteaching and its historical evolution, was designed to provide a rationale for the introduction of the program and gain initial student acceptance of it.
- The second lecture dealt with the course objectives and structure and indicated how a micro-lesson might be designed to assist pupils to learn a concept or a principal of a subject discipline.
- The introductory lectures were followed by two identical courses each of seven weeks duration so that all B.Ed. Arts students could participate as members of a microteaching group.
- In each of the seven weeks of a course, there was a preparatory lecture-discussion session of one hour which all the course participants attended to develop a thorough understanding of the microteaching task to be performed that week. This theoretical session was followed two days later by a two-hour practical session during which each student taught a micro-lesson to his peers and participated in a critique of it.
- The micro-lesson was normally of five to seven minutes duration. It was given to the remaining six to eight members of the practicing teachers' microteaching group.
- There was provision in the program for continuous evaluation of its functioning by the participating students, supervisors and technical staff and for modifications to be adopted to improve its effectiveness.
- Modifications were made in the introductory lecture to provide for the better use of models of the strategies and in the conduct of the practical sessions to make more effective use of the recording facilities and the microteaching guides in the critique discussions.
- After the evaluation of the first course, some modifications were made in the content of the microteaching tasks for participants in the second course so as to stress the integral use of appropriate media of instruction in the use of teaching strategies.
- At the end of second course, there was a comprehensive evaluation of the whole program by the Faculty based upon a "Microteaching Questionnaire" which participants in the courses had been invited to complete.

The effective use of a micro-lesson implies a variety of activities subsequent to the giving of the lesson to ensure that the student-teacher derives maximum benefit from the lesson critique in the development of his teaching competence. The activities constitute the components of a performance–feedback–practice schedule which is continued until the desired skill objectives are achieved.

Ridden

No rigid schedule of activities on the Stanford Model was built into the Nairobi course. Instead, provisions were made which relied upon student group dynamics, student leadership, individual initiative and supervisor-student rapport to provide suitable follow-up activities. The provisions were:

(1) Student microteaching groups elected group leaders who were expected to liaise with the group supervisor, the audiovisual technical staff and their group members to ensure suitable follow-up activities, such as a further group critique using an audio or audiovisual replay of a lesson, and if necessary, a reteach session.
(2) Each student was issued with an Appraisal Guide for every micro-lesson, and some form of peer evaluation of every lesson was used by group supervisors.
(3) On the basis of the critique of his lesson, each student was required as part of his microteaching task to write comments upon his lesson—including suggestions for improvement of the techniques—in the space provided on the plan constructed for his lesson and to adopt any follow-up procedures indicated, such as replanning or reteaching.

Evaluation of the Microteaching Program

As indicated earlier, a comprehensive evaluation of the program was made by the staff of the Faculty after it had been completed. This evaluation took the form of a staff discussion based upon three evaluation papers compiled and circulated by staff members and an analysis of the answers to the Microteaching Questionnaire to which student participants had been invited to respond anonymously by the organizer of the program. From it there emerged a fairly clear picture of some of the achievements, difficulties and limitations of the program.

In general the students were of the opinion that the course was interesting and that it greatly increased their knowledge and understanding of some important strategies and techniques of teaching and their skill in using them. They were also of the opinion that the course was of great benefit in developing their competence in the following areas of teaching:

- selection and statement of specific lesson objectives;
- planning an effective sequence of teacher and pupil behaviors to attain the instructional objectives;
- techniques of using restricted questions, open-ended questions and questions designed to stimulate pupils to construct their own opinions and conclusions;
- techniques of using the chalk board and audiovisual aids effectively;
- techniques of getting effective pupil participation;
- techniques of introducing and concluding a lesson; and
- general confidence and poise in facing a group for teaching purposes.

From the Faculty point of view the main gains were:

- a considerable reduction in the cost in money and time of providing practice in the techniques of teaching;
- the provisions of a framework for the faculty staff to articulate theory and practice and to work as a team in developing the practical competence of their students;
- the provision of opportunities for students to become more analytical and competent in their self-evaluation and to regard their supervisors as cooperators in their self-development instead of supervisors;

- increased skill in the use of the techniques practiced although research would be needed to establish the extent of the gains and the transfer of competence to school situations;
- improvement of student-teacher attitudes towards new instructional methods.

The following difficulties and limitations were indicated by participants in the program:

- the exclusion of science students from the program;
- the limitations on the participation of some students because of timetable clashes;
- some loss in reality because of the use of peers as pupils;
- insufficient audio and video equipment for the recording and replay of all the students' micro-lessons;
- difficulties of efficient maintenance, deployment and use of the available equipment and of availability of rooms;
- a deficiency in the number and variety of models of the strategies and techniques to be learned by the students;
- misconceptions of the students concerning the general functions of the program as a whole and of specific microteaching tasks. For example, it was thought that microteaching ought to provide solutions to disciplinary problems of large classes, that the program advocated some strategies in preference to others and that the quality of subject matter was irrelevant when techniques are being practiced.
- difficulties of effectively integrating the program with other aspects of the teacher training program, for example, the courses in General Methods, Educational Technology, Special Methods and Educational Psychology; and, finally,
- logistic problems associated with the provision of a program within the context of a rapidly expanding student enrollment and changes in course structure and content.

Based upon such assessment, efforts were undertaken to prepare for the involvement of all future preservice teachers in the microteaching tasks at the Education Center at the University of Nairobi.

IV
THE DETERMINATION OF POLICY IN TEACHER EDUCATION

In much of the contemporary world education, generally, and teacher education, in particular, are confronted with governance systems and structures that work to their disadvantage. Many of the problems of education stem directly or indirectly from these faulty systems and structures. In much of the world shifts in resource allocation, the growing unity and cohesiveness of the teaching force, important shifts in curricula and new demands being placed upon schools to prepare new kinds of human power necessitate a whole new set of assumptions about the governance of teacher education. The varying interrelationships between the university, its professional schools and the teacher training colleges, the practicing teachers and the schools, the community, governmental units and vested public interest groups must be sorted out to alleviate the various constraints to effective policy making which now confront teacher education.

Hewett describes one approach to the resolution of such problems drawing on his own experiences in England. His triangular concept of governance for teacher education presents a model for discussion and examination. Fundamental issues of how overall policy for education is formulated and implemented can be derived from Hewett's presentation as well as how such a model might be applied to states with either less participatory democracy or more centralized decision making. Manone's paper on Thai education presents a model as to how public and professional support can be drawn upon in the formation of new policies and programs.

DETERMINATION OF POLICY IN TEACHER EDUCATION

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When I first joined the staff of a college of education back in 1951, a somewhat cynical older colleague greeted me with the words "welcome to a quiet educational backwater!" During the years which followed I have been constantly and sometimes painfully aware of the fact that nothing could be further from the truth. Teacher education is a particularly difficult area of educational endeavor which is continuously under review, discussion, inquiry and criticism among all sectors of the educational world and increasingly by laymen.

I used to be rather puzzled as to why the innocent professional occupation of preparing young men and women to enter the teaching profession would arouse such widespread interest and passion, but the reason is not far to seek. Societies and nations create social and political problems, but rather than seek solutions for such problems through social or political means, they expect the schools and other educational services they create to do it for them. Not surprisingly, the education system, which has a number of inherent problems, often finds itself unable to cope with such ills. Society then mutters darkly that something is wrong with the schools and that the education profession should put its house in order and start giving value for money.

The education community then begins to look at itself and sets up a game, or a series of games, of educational buck-passing. Its very simplicity makes it irresistable and largely accounts for its universal popularity. All one needs is at least two players and one educational responsibility or problem. The object is for each player to shift the responsibility to another as quickly as possible. The player left holding the responsibility when the music stops is the loser and becomes the keeper of the professional consciences of the other players until the next game. If the same player loses regularly, he is given the title "Educational Scapegoat" and is deemed to be responsible for all the shortcomings of the schools. If two or more players consistently combine against another, the element of chance can be virtually ruled out, and the person concerned is, in effect, elected to the office of "scapegoat" more or less permanently. It is a position which, while it exists, ought to be passed around.

There has been a tendency for teacher education, because of its relatively weak position, to be saddled with more than its fair share of responsibility for the shortcomings of schools. This is not good for the teacher educators, who tend to get depressed and paranoid, and it is not good for the other players who get lulled into a false sense of security with regard to the value of their own contributions. The main burden of my song is that the time has come, indeed it is long past, when we should establish a collective responsibility for professional education, a genuine partnership in teacher education, which creates joint responsibility for policy making and decision taking and thus makes the game of educational buck-passing not merely unnecessary but impossible.

In the United Kingdom, we have recently experienced intensive and lengthy discussion of ends and means in teacher education. Because it is illustrative of wider issues, I hope that some comment on it will be of interest. The debate, or at least this particular phase of it, began in 1963 with the Robbins Report on Higher Education.[1] It was sharpened in 1966 with the publication of the Plowden Report, *Children and Their*

Primary Schools, which raised questions concerning the suitability of certain aspects of existing preservice courses as preparation for future teachers of primary school children.[2] Since then, we have had an inquiry into teacher education and training conducted by the Parliamentary Select Committee on Education and Science, inquiries conducted by the 22 Area Training Organizations at the request of the Rt. Hon. Edward Short, when he was Secretary of State for Education and Science, and the Committee of Inquiry, chaired by Lord James of Rusholme, set up by the present Secretary of State when she succeeded Mr. Short in June, 1970.[3] The fact that there was no satisfactory outcome from all these intensive inquiries and discussions illustrates better than any other evidence could that teacher education is an extraordinarily difficult area in which to make policies which will command the support of all those directly and indirectly involved.

The value of these seemingly endless debates was that it began to be clear why the making of policy in teacher education was so extraordinarily difficult. It became crystal clear that there was no consensus of opinion on the objective of the exercise—good teachers and good teaching. This will come as no surprise to us, since we have given a good deal of thought to the matter and discovered long ago that things are rarely as simple as they seem. It came as something of a shock to others, as the following extract from the evidence taken by the Parliamentary Select Committee indicates:

> Interrogator: We are constantly getting this sort of advice from people; on the one hand it would be nice to do one thing, yet on the other hand there are severe objections to that and it would be nice to do exactly the opposite.
>
> Witness: What do you expect? [4]

What also emerged through the welter of words and the floods of papers was a clearer identification of the various interests who felt they had a right to determine policy in teacher education. The more one looked at their various viewpoints and the equally various policies which stemmed from them, the stronger the conviction grew that, while all of them had their individual validity, no single interest or single policy could be allowed to overrule the others. Some means would have to be found by which the legitimate interests could be brought together to determine collectively policies for teacher education. It was not so much the James Report itself which produced this realization, but the necessity for all concerned to work together to adapt the Report (which had the merit of being universally unacceptable *in toto*) into a workable set of arrangements which would command the support of all the various interested parties. The extensive round of official consultations initiated by the Department of Education and Science and the multitudinous unofficial consultations which followed in the wake of the James Report identified the problems more clearly than they had been hitherto and thus opened up the possibility of solving them.

Perhaps the most powerful voice to emerge was that which speaks collectively and politically for what might be termed the public interest. Central and local government represent, or claim to represent, the public. They are between them responsible for the public education service in the United Kingdom. They raise monies from the public by central and local taxation; they spend it in the public interest and are (or should be) in the last resort responsible to the public for the use of their money. Local authorities in the U.K., central government in many other countries, are the employers of teachers and therefore have a legitimate interest in the professional training they receive since this will determine to a very large extent the success or failure of schooling for which some level of government is ultimately responsible.

The second major interest group could be loosely called the academic. By this I mean the training institutions and the academic bodies which make awards to the students in

them. The colleges and universities and their respective staffs are, in the U.K., directly responsible for carrying out the training process and are responsible for course design and the maintenance of standards. They must operate within the limited resources which central and local government make available to them: financial and academic administration are thus separate and the possibility for tension, if not conflict, between them is always present.

The third major interest is professional and is represented by the teaching profession which can reasonably be expected to have a view on the training of those who will be joining their professional ranks and working alongside them as colleagues. While the teaching profession is not responsible for the process of professional training, it has to receive its products. It is not surprising, therefore, that teachers, as representatives of that profession, demand a place at the table when policy is being determined.

A fourth, and still emerging, interest is the student. Both at institutional and national levels those who are undergoing the process of professional training are claiming the right, not merely to state their views on what is being offered to them, but to share the policy making which will determine the kind of professional education they will be given.

The fifth interest is multiple, diverse and conflicting. The only thing the diverse elements have in common is their egocentricity and their attitude to current practice. This group can be collectively described as factional curriculum interests of various kinds. By this I mean all those people who individually or collectively are convinced that the aspect of the curriculum they are interested in—one might almost say obsessed by—is inadequately dealt with in the professional education of teachers. They are supremely indifferent to any interest except their own and, if all factions were catered to for their own satisfaction, successful teachers would be restricted to encyclopedic geniuses who entered the profession after a twelve-year course. They can, however, be agents of curriculum innovation, and they cannot all be ignored all of the time.

As well as the clearer identification of the major interest groups, it also emerged more clearly what the debate was about. The fundamental points at issue in an argument are rarely the topics being debated. These are merely an excuse for an argument about something which has its roots more deeply embedded. In the most heated and persistent arguments none of the participants may be aware of the real issues; that is why they are so heated, persistent and inconclusive. So it was in the ten-year debate on teacher education in the United Kingdom. The debate was not really about whether teachers receive a good professional education or not, since it is generally agreed that they do, and, if it is not all that it might be, it is certainly very much better than it has been in the past. The fundamental issue which is the root cause of the dissatisfaction expressed is that the existing machinery for determining policy does not provide a satisfactory balance of power and distribution of responsibilities among the legitimate interests which are involved. That is the disease; and topics debated were the symptoms. If one is excluded from policy decisions, one can only criticize what others have done, frequently without a full understanding of the factors which shaped that particular policy decision. If one is party to the decision making process, the opportunity exists to shape the policy; the argument and the criticism comes before the decision, not afterwards.

Of course, the five interest groups identified have existed as long as teacher education as a process has existed. One may therefore reasonably ask why only now has conflict of interest arisen in the determination of policy in any major way. The answer is simple. Only in the comparatively recent past, in the climate and context of participatory democracy, have the interests aligned themselves in identifiable groups, found voices and the confidence to make them heard. The process by which we have reached this situation, and the inherent conflicts and tensions within it, is the essential history of teacher education as an identifiable educational activity. The main outlines of the model are, I

believe, common to us all. The essential problems which face teacher educators are common the world over. Where they differ, it is because we are, in our various countries, at different stages in the same evolutionary process. The actual path we tread is remarkably similar, but some countries are further along it than others. It may be helpful, therefore, to look at the main stages in this process and to look at the problems involved at each stage.[5]

Stages of Development in Teacher Education

The first stage is that, through either voluntary or state initiative, a start is made to provide mass public instruction. An elementary system of education is born. Individuals are needed in a hurry in large numbers to staff the elementary schools. Hence the bodies responsible for providing the schools find themselves establishing a training system to provide the kind of teachers they want for their schools, in the numbers required, at the price they are prepared to pay which, invariably, is not much. The most rapid way to build a teaching force is by using selected pupils as apprentices.

The next stage is the development of training institutions to gradually replace apprenticeship as a means of providing trained manpower. These training institutions are regarded, for the most part, as extensions of the school system, since the same body provides both the schools and the training institutions and their products are designed to match the predetermined curriculum and ethos of the schools. The teachers are deliberately selected and manufactured to operate a system of instruction over which they have no control.

The control of curriculum in schools and colleges tends, in the early days of a state system of elementary education, to lie with government. This is partly due to the absence of any other body which could take over the responsibility, partly the result of increased financial support by government and hence an understandable desire that, since it pays the piper, it should call the tune, and partly because of the necessity to establish national standards in the qualifications awarded. At this stage in the development of teacher education the training institutions provide a relatively short course, have no academic autonomy and no effective control over what they teach. Under these circumstances, the academic interest in teacher education can scarcely be said to exist in organized or identifiable form, let alone exist with sufficient confidence and sense of purpose to demand a share in policy making. When only one effective power exists, namely the public interest, there is no possibility of creating a balance of powers. The prerequisite is the creation of other powers with which to strike a balance.

The next stage in the process of evolution is a lengthy one, since it involves the identification, organization and recognition of the academic interest in the training institutions themselves and their staffs. Desire grows to liberate the teacher education curriculum from outside control and to seek academic autonomy for the institutions responsible for the training process. A prerequisite for success here is the organization of the institutions and their staffs into associations which can formulate collective policy and seek its implementation. The role of the ATCDE and its joint predecessors, the Training College Association and the Council of Principals, in organizing the academic interest in teacher education in England and Wales is one of which all concerned can be immensely proud. The overall objective is to raise the status and competence of the teaching profession by ensuring that the standards of the professional education of its entrants are comparable to other major professions. The means to this end involve making teacher education an integral part of higher education by setting the same entry standards as for the rest of higher education, lengthening the course, raising the level of final qualification to ensure an all-graduate profession and ensuring that the awards at the end are made by recognized and independent academic awarding bodies. These objectives

imply full academic autonomy for the training institutions, i.e., academic control over admissions, course content and assessment.

When these are achieved, one can be said to have reached stage three, and it is here that major complications and difficulties arise concerning determination of policy. The content and methodology of the preservice teacher education curriculum will strongly influence, if not determine, what is taught in schools and the approach used in the teaching. Here one now has the curriculum of teacher education in the hands of academics who might be seen to be determining the curriculum policy of the schools which they are certainly not entitled to do. The training institutions are not responsible for school curricula, either directly or indirectly. Precisely who is, or should be, is another matter which there is not time to pursue on this occasion. On the other hand, the training institutions, with their hardly-won academic autonomy, clearly cannot allow an outside source to determine the content of their courses and decide the basis of their awards. The constant bickering over the relevance of the professional education of young teachers to the tasks they are required to perform is in essence a conflict between academic independence on the one hand and public and/or professional concerns on the other. The training institutions cannot accept a reduction of function to that of servicing agents, producing teachers to fit the existing needs of the schools, nor can employers and the teaching profession accept that the training institutions are free to send out what products they choose.

The next and final stage, though it overlaps considerably with the preceding one, is the achievement of full professional status by teachers. One feature of full professional status is the right of the profession to restrict entry into its ranks to those who achieve, in their view, satisfactory professional standards. This stage has not yet been achieved in England and Wales, though it has in Scotland. Attempting to achieve this aim, almost as much as its achievement, means that the profession must try in some way to control standards of entry which, in its turn, involves specifying, at least in part, the content of preservice professional education. This can bring the professional interest into sharp conflict with the academic which cannot, in the name of academic freedom allow control over its courses and awards to pass into outside hands, no matter how professionally competent they may be.

Thus, there evolves the triangle of forces in teacher education—public, academic, professional—all of which deserve to share in policy making. If they are not welded into an appropriate partnership, they will rapdily become a triple misalliance expending their energies in triangular warfare and frustrating the determination and implementation of effective policies. It was the existence of this triangular situation, with no means for effectively resolving the issues, which was the cause of the long, often bitter and somewhat inconclusive controversy over teacher education which has characterized the British educational scene for the last thirteen years. It will characterize other national scenes, if it is not already doing so.

I do not believe that students have a right to share in major policy decision making, though they can certainly influence it. They are transients in the system and cannot be a party to major decisions, the consequences of which they will not have to live with. We will not get far without their goodwill, and they have an undoubted right to fullest consultation at national and institutional levels.

One must also exclude from decision making the various curriculum factions. They cannot speak except for their own special interests, and their place is to remain outside and to influence as best they can those whose function it is to carry responsibility for the curriculum, both in the schools and in the training institutions.

Policy and responsibility must be shared between the three main interests—the public (the employer), the academic (teacher educators) and the profession (the teachers). Where the central government or regional authorities are not the employers, they will, nevertheless, be an aspect of the public interest, since almost certainly they will be providing financial support of one kind or another to locally controlled provision.

In view of the historical development of these interest groups, reconciliation will not be easy. The employers will say that they have a right to determine the kind of teachers they have to employ to run their schools. The teaching profession will say that they have a right to say who enters the profession. The training institutions will say that they must have a degree of academic autonomy appropriate to institutions of higher education. It is clear that if an effective partnership of equals is to be formed (and I hope that the need for it is now without question), everybody must compromise to some extent. No partner can have all he wants without damaging the legitimate interests of the others. Nobody should get everything all of the time. Everybody should get something some of the time. We must have a teacher education partnership with a balance and distribution of powers between members different from that which we have at the moment.

Since we have given a good deal of thought to this matter in the debate on the James Report, I hope you will forgive me if I make reference to the proposed English synthesis by way of illustrating a possible model for the balance and distribution of powers.

It is useful to start by looking at the different aspects of teacher education on which policy must be determined to see whether some partners should be more involved in some aspects than others. The first and overriding matter on which policy is needed in teacher education—as in any other publicly financed activity—is supply, that is, the allocation of public monies to this particular activity. Determining the size of this financial allocation in competition with other claims on the public purse must finally rest with the public interest as represented by government, since, after all, it is the public which will pay. The size of the allocation will in itself determine the number of teachers produced, the length of training they receive and the level of resources devoted to that training. Obviously, the academic and professional interests have views on these matters, but their function is to make their case on educational grounds and to convince the guardians of the public purse that the money must be found to obtain desirable educational objectives. The academic and professional interests cannot vote their own funds or print their own money. Therefore some appropriate means must be found by which the academic and professional interests can make their views known to governments. We are in the process of setting up such a body under the title, "Advisory Committee for the Supply and Training of Teachers," on which will be represented—if not precisely balanced—the three main interest groups. Its function is advisory, but one would hope that the Secretary of State would not lightly disregard its advice. Nevertheless, where public money is concerned, final decision must rest with the politician. By and large, we get the politicians we deserve.

At the more workaday level of the actual arrangements by which teachers are prepared for entry to the profession and are assisted with their professional development once in it, it is possible to phase the process and devise appropriate arrangements for the management of each stage which may well help to solve some of the difficulties over conflicting academic and professional interests. We are proposing in England to regard education for teaching as a three-phase continuum, each with its distinctive character. First, there will be the preservice stage of education and training ending with a recognized award and qualification. Secondly, there will be a one-year period of induction into the profession itself which, if successful, will be followed by professional

registration. Thirdly, there will be continuing professional education of various kinds for teachers in service.

It is proposed that the first stage of preservice education should recognize and accept the differences between the academic and professional interests in education by separating them and giving each its appropriate responsibilities. The arrangements will separate academic awards from the professional recognition of those awards for the purpose of entering the teaching profession. In effect this separation recognizes the right of an academic awarding body to teach what it likes and make what awards it thinks fit. The awards do not, however, entitle the holders to enter the profession unless the award has been approved by an appropriate professional body. This relationship seems a way of preserving both academic freedom and professional responsibility, and should bring the two interests into a productive relationship: it will not be without its tensions and difficulties, but they could be creative rather than destructive. Academics are independent, responsible to themselves and should be radical and innovatory: professionals are naturally constrained by professional self-interest and, in the last resort, tend to be conservative and suspicious of innovation. Given the relationship proposed, the academics are likely to use their independence responsibly, while the professionals can make their views know without being given the right to determine the content of courses. Thus the primary responsibility at the preservice stage is academic, with the recognition of the award by an appropriate professional body providing appropriate professional safeguards.

On the basis of a qualification recognized and approved by an appropriate professional body, the individual is entitled to enter the profession as a qualified, but inevitably inexperienced, teacher. His first year will, therefore, be regarded as an induction year, during which the new teacher will be under the supervision of a school-based professional tutor and released for one-fifth of his working time for further study at a professional center, which will normally be a college of education or university. The successful completion of this year will end in registration and full professional status. Since this is a school-based year of professional induction, the responsibility for evaluating it and recommending registration would rest with the teaching profession acting through the professional tutors, supervisors, principals or head teachers. The academic interest acting through professional centers can provide support, services and advice, but essentially control and management should be in professional hands. This reverses the weighting of responsibility at the previous stage.

At the third or inservice stage, policy must be largely if not wholly the joint responsibility of the profession and its employers. The academic function is consultancy and provision. The teachers are full professionals and should be capable of assessing their own professional needs; the employers must assess the needs of their education service, and both must indicate how they wish these needs to be met. It may, in practice, not always be easy to reconcile what the profession regards as its needs with what the employers consider to be the needs of the service. It is the function of the academic interest to attempt to meet the needs once defined by providing appropriate resources and courses. The academic interest should not be limited however to providing courses merely to meet defined needs. It must be open to training institutions to offer whatever they think fit in the way of advanced courses and awards, and no doubt many teachers would take such courses for their own personal interest as well as their own professional advancement. Institutions would almost certainly seek appropriate professional advice and consult the public interest in planning such courses, since they would be seeking to attract serving teachers supported by public money to them. The public, professional and academic partnership would exist for the determination of policy at the inservice stage, but the major voices in decision making should be the teachers and their employers.

The same partnership for the determination of policy exists at all three stages in the continuum of professional education but with a different balance of powers between the partners at the various stages. At the preservice stage, the responsibility is primarily with the training institution (the academic interest), with professional advice and safeguards built in. The public interest is largely confined to teacher supply to the control of finance to the training institutions. At the induction stage, the balance shifts, so that the balance of power is with the profession. The public interest must be closely involved, since the individuals being inducted are their employees, and it will be the employers who will be responsible for ensuring that appropriate arrangements and facilities exist. The academic interest is a partner, but, where policy is concerned, a junior partner in the induction process, being largely concerned with servicing and advice. At the inservice stage, the balance is more variable, depending on the kind of inservice activity being provided. There must be full and equal partnership in assessing the level of inservice provision needed over a given area. Broad decisions as to who provides what, for whom and where must be made. Thereafter, there will be some courses provided by the employer to meet the needs of the particular school and/or community for which he is responsible; some courses provided at the request of the profession by the training institutions; some courses provided by the training institutions without professional constraints upon them. Each kind of provision will need its own arrangements for control of course content.

Conclusion

Teacher education is far from being an educational backwater, as my former colleague tried to suggest. It is a politico-professional-academic focus which raises questions of considerable moment and delicacy. Like any other higher education activity, it has a right to intellectual independence, but it can never forget its social and professional responsibilities. It can never be an island. It exists essentially to serve a wider purpose than its own interests. It feeds the largest, and *in toto* the most expensive, professional group in any nation. It produces the one professional group which few can escape contact with. It is, therefore, inevitably a meeting ground for the public (i.e., political), professional and academic viewpoints, and before effective policy can be made, the means must be provided by which each of these major interests can share in the decision making without infringing the rights of the other partners. Looked at in general terms, it is a microcosm of the conflicting forces which produce the tensions—creative and destructive—in our society. We have the radical, independent, occasionally irresponsible force in the shape of the academic interest; we have the protective, conservative force in the shape of the professional interest; and we have the bewildered onlooker in the shape of the public interest who must live with, and eventually pay for, whatever results from the tensions between the two forces. The determination of policy in teacher education is essentially no different from the determination of policy in any other sphere. One identifies the parties with a legislative interest and brings them together to share responsibility in such a way that no one party can preempt power or claim for its views on some aspects of policy; no party should expect priority for its views on all aspects. If we could, in our relatively limited area, work the obvious tensions between the various interests into a creative and productive working partnership, we should have done more for our various societies and nations than merely educate their teachers: we should have taught them the meaning of honorable compromise in the formation of policy.

Footnotes

[1] Lady Bridget Plowden, *et al. Children and Their Primary Schools: A Report of the Central Advisory Council for Education (England)*. London: Her Majesty's Stationery Office, 1967, 2 Vols. (The Report and Research and Survey), 1188 p.

[2] Lord Robbins of Claire Market, *et al. Higher Education: Report of the Committee on Higher Education Appointed by the Prime Minister under the Chairmanship of Lord Robbins, 1961-1963*. London: Her Majesty's Stationery Office, 1963, 7 Vols. (The Report: The Demand for Places in Higher Education; Students and Their Education (2); Teachers in Higher Education; Administrative, Financial and Economic Aspects of Higher Education; and, Higher Education in Other Countries), 2008 p.

[3] Lord James of Rusholme, *et al. Teacher Education and Training: Report of a Committee of Inquiry Appointed by the Secretary of State for Education and Science under the Chairmanship of Lord James of Rusholme*. London: Her Majesty's Stationery Office, 1972, 128 p.

[4] Hon. F.T. Wiley, *et al. Teacher Training: A Report of the Parliamentary Select Committee on Education and Science.* London: Her Majesty's Stationery Office, 1968, 330 p.

THE IMPROVEMENT OF EDUCATION IN RURAL THAILAND: A MULTI-DIMENSIONAL APPROACH

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The presentation on "The Improvement of Education in Rural Thailand" was presented to the delegates and participants of the Nairobi World Assembly informally and was illustrated with a series of overhead transparencies. Presented below is an introductory statement and a summary description taken verbatim from the total document which consists of 275 pages and which was produced by the Ministry of Education in Thailand and the United States Operations Mission to Thailand in Bangkok in 1973. The document was submitted as a proposal for development assistance and is currently being studied for possible implementation.

Introduction

Throughout the world, but especially in the developing nations, we are currently witnessing a growing impatience with the pace and distribution of social and economic progress. Thailand is no exception. Despite the achievement of enormous growth and development during the past two Five-Year Plans, as well as during the beginning years of the present Plan, much remains to be done. Awesome disparities in income still exist between the eighty percent of the people living in the rural sector and the twenty percent working in urban centers. But the disparities do not end here: Medical facilities, educational opportunities, everyday living conveniences and amenities, avenues for transportation and communication and possibilities for social interchange and recreational pursuit all overwhelmingly favor the minority of the population fortunate enough to have had accidental circumstances locate them in an environment of higher incomes, easier living and brighter lights.

Future progress obviously is needed on many fronts. The spiraling growth in urbanization and industrialization in Thailand is irrefutable and irreversible. It will continue, and it will challenge the nation's most creative minds to make certain that such growth is imaginatively planned and efficiently executed. However, equally irrefutable and irreversible, at least for the foreseeable decades ahead, is the fact that as many as four out of every five citizens will be living in the traditional sector and will be depending almost totally on agriculture and agriculturally-related enterprises for their daily living. And Thailand, so rich in its tradition of freedom, independence and compassion, will have to open the door of opportunity more widely if these citizens are to enjoy a better life and discover a more promising future. Bestowing upon its lowliest and poorest people a new respect and a new measure of human dignity through better and more relevant education is an inescapable prerequisite if Thailand is to construct a more egalitarian

society and more open and democratic institutions. The task is towering; it is also urgent. The growing, ominous gap between the haves and have-nots, both on international and domestic fronts, cannot continue endlessly. Silence can no longer be construed as golden; patience has its limits, and precious time may be running out.

The compelling reasons of national investment, security, humanitarianism and simple decency demand that in the days and months ahead more ambitious attempts than have been launched in the past be directed to improving as swiftly as possible the plight of our rural people. The job, to say the least, will not be easy. It will tax both our best minds and our scarce resources. It will call for a new sense of daring, more imaginative planning, more innovative thought, bigger and bolder action. New ground will have to be broken; new directions charted. Some departures from the past will be required, for the solutions of yesterday, it is now quite evident, have been too slow and too feeble in attempting to solve the staggering problems confronting our striving and rapidly growing population.

The fact that Thailand allocates almost as much of its annual budget to education (19.1 percent in 1973) as it does to its top priority sector, national defense (19.5 percent), should constitute convincing evidence of the faith that Thai political and educational leaders place on the power of the classroom, with or without walls, to shape national destiny. But faith alone, and even money, are not enough. Imaginatively conceived action programs, founded on sound theoretical and conceptual constructs, and balanced by pragmatic and hard-earned practical experience, are surely needed. The program described in this document is that kind of proposal. It is an ambitious proposal; its aim is high. Approximately two hundred Thais, as well as a dozen or more foreign specialists, have contributed and reacted to the design and development of the proposal over the past twelve months. Additional suggestions and constructive criticisms, however, are needed to improve and refine the proposal even further. There will also be a need for foreign support by those external assistance agencies that have confidence in Thailand's future, that possess the resources and willingness to contribute to that future and that—after study and analysis of this proposal—feel that the program as planned, or with modification, is worthy of implementation. The Thais—that is, a grouping of various RTG ministries and agencies responsible for educational leadership in the nation—have taken the lead in terms of initiative, leadership and responsibility. Their hope is that other individuals and institutions may see fit to join their effort.

The multi-dimensional project described in the pages that follow, it should be emphasized, is both comprehensive and complex. The shortcomings of our current educational program in Thailand, both quantitatively and qualitatively, are serious and costly. Hardly a week goes by without witnessing in the local newspapers new problems, attacks and crises. And the problems are not simply apt to disappear. Rather, unfortunately, the reverse is more likely to be true. The problems, both in number and in severity, will probably grow. Consequently, we must not delude ourselves into believing that correction and remedial action will somehow come about automatically, or that they may come about by means of minuscule efforts, scattered initiatives or simple, easy-to-manage, short-term projects. Elephants do not yield to slingshots just as intractable problems do not bend before easy, simplistic schemes.

The nation Thailand hopes to be in 1980, 1990 and even in the twenty-first century is directly hinged to the kind of education we now provide. Our culture, our institutions, our values and even our unity as a free nation are inextricably tied to what our young people of today learn, how effectively they learn, what they value, how they feel, what they cherish, what they are willing to fight for.

The proposal is urgent and daring. It has the potential for being one of Thailand's most productive educational endeavors. *It represents a strategy to achieve a fuller*

measure of self reliance in the indispensable area of educational action research and development with particular focus on the rural area. To transform it into reality will require the efforts and talents of many. In essence, it really represents an open and challenging invitation to Thai leaders of rank, high and low, representing numerous ministries, the mass media and other agencies, to join hand in a common cause *to uplift the lives of millions of people in rural Thailand* who yearn for and deserve a more hopeful tomorrow—a tomorrow that is within their lifetime. If we as educational leaders do not champion their cause, who will?

Descriptive Overview

The goal of this project is to plan and promote an institutional capability within Thailand to create, implement and evaluate perpetual reform and innovation in education through the creation of a comprehensive regional action research and development center. The center will be located in one of the rural areas of Thailand. Its central focus will be the traditional sector and the role education can play in upgrading the lives of people living there.

The functions of the center will be action oriented; emphasis will be directed to practical programs, skill development and applied research. The center, which will be made up of several interrelated components, will concern itself primarily with formal educational institutions; but it will also give considerable attention to non-formal and adult education and the ways in which they can supplement and support formal schooling by providing opportunities for relevant lifelong learning.[1] It will reach out into the surrounding community, which will serve as an actual laboratory for learning, in a direct attempt to relate learning to living, and to the problems and needs of village people.

The center, in a sense, will represent a microcosm of a state or national educational system, but with fewer functions and more limited objectives. It is planned as a pilot program which, if successful, could readily serve as a prototype, with appropriate adaptation, for other rural regions of the nation. The project concentrates on four key target areas:

(1) *Elementary Education* (e.g., curriculum revision in all subject areas, instructional materials, tests and evaluation tools);
(2) *Teacher Education* (e.g., preservice and inservice education, curriculum content, methods of teaching, instructional materials, instruments and methods of evaluation);
(3) *Adult and Non-formal Education* (e.g., teacher training, curriculum development and instructional materials related to functional literacy, occupational preparation, agricultural pursuit, health education, population education); and
(4) *Educational Administration* (e.g., leadership training organization and administration, supervision, program planning, finance).

The project, during its various stages of development, will be guided by the following criteria:

(1) emphasis on educational *quality* as distinguished from quantity;
(2) stress on sensible and productive *innovation*; increased quality cannot take place without imaginative change;
(3) direction aimed at a high degree of national *self reliance*;
(4) maximization of *multiplier effect* so that limited inputs in a pilot operation possess the potential for widest possible impact;
(5) focus on activities that are strongly *production and time-oriented* in order to meet Thailand's urgent needs now for specific and improved instructional materials, practices and programs;

(6) concentration on educational planning and development as a systems enterprise, broad in scope, many-faceted, youth-and adult-directed, pervasive and life-long.

Multi-Dimensionalism Anatomized

A systems approach, called for in the final criterion just cited, in its simplest terms means a comprehensive project made up of numerous facets.[2] Consequently, the project is multi-dimensional in nature. To be more specific, the project is:

(1) *multi-functional:* It emphasizes curriculum revision, preservice and inservice teacher training, materials of instruction, administration and supervision and research and development.
(2) *multi-institutional:* It focuses primarily on elementary schools, teachers colleges, colleges of education and faculties of education at universities with elementary school training programs.
(3) *multi-disciplinary:* It deals with all subjects (e.g., science, mathematics, social studies, language arts, music, art, physical education and health) that should be taught to children of elementary school age.
(4) *multi-focused:* It places highest priority on education provided through the formal school structure; at the same time, however, it gives attention to non-formal and adult education, which along with formal schooling, provide a continuum for life-long learning.
(5) *multi-jurisdictional:* It calls for the closest cooperation and coordination between the Ministries of Education and Interior as well as other ministries and governmental agencies which will be involved in the project.
(6) *multi-directional:* It provides for strong centralized control from ministry offices in the capital in such basic areas as overall policy and priority determination, personnel and institutional assignments, budgetary allocations and general supervision; at the same time, it authorizes considerable local autonomy to promote and encourage a high degree of initiative, leadership and responsibility on the part of local personnel directly in field operations.
(7) *multi-provincial:* It includes two changwats very directly, and a larger geographic area in more of an information-receiving rather than an active participative role.
(8) *multi-sectoral:* It relates educational activities such as curriculum development, materials selection and preservice and inservice teacher education to activities of other sectors such as population education, health education, agricultural production and public information.
(9) *multi-national:* It seeks the assistance of other nations and external assistance agencies in selected areas of planning, implementation and financing.

Emphasis on Totality

Multi-dimensionalism, of course, forcefully implies complexity. It also implies the indispensable need for efficient organization, smooth communication, close coordination and dynamic, flexible management. Education, in modern terms, can no longer be treated as a conglomerate of separate, independent entities. What an elementary school student studies (curriculum), for example, is related to what his teacher teaches (teacher training), and what materials he uses and how (instructional methodology and technology). The sharp lines that once divided formal education, non-formal education and adult education are fading rapidly. The new name of the game is totality, wholeness, sectoral approach and now, recently, inter-sectoral approach.[3]

The fundamental concept underlying the multi-dimensional approach is that education is a comprehensive and interrelated whole that is understood most fully and redirected most efficiently when it is perceived and acted upon as a total integrated system with linkages to other systems and sectors. Too often projects have been handicapped, or even doomed, from the start by limiting their scope (for example, concentrating on curriculum revision without giving attention to instructional materials and teacher training which are the chief vehicles for implementing that revision) to fit the limited knowledge of the writer or designer, to coincide with the availability of funds, to facilitate management or to simplify evaluation. By analogy, the diagnosis and proper treatment of a specific human ailment, especially if it is serious, requires a thorough understanding and study of the total biological organism from both a physical and psychological standpoint. To use a further analogy, urban renewal calls for far more than the improvement of living quarters; also required are measures of disease prevention and cure, recreational facilities, educational and rehabilitation opportunities, job employment and, at base, a sympathetic sensitivity to the feelings, values, and aspirations of the dispossessed and disadvantaged. Similarly, education, to be understood and improved, must be perceived as a complex of numerous interacting and interrelated variables, constantly changing, that lose meaning, prespective and vitality when treated as independent entities.

A case for multi-dimensionalism and program simultaneity related to educational reform in Africa with particular emphasis on teacher education was recently made by Professor John Hanson:

> The centrality of the system of teacher education for maintaining or improving formal education in Africa has been widely recognized by visitors to African schools. Lip service is frequently paid by governments and development experts to the importance of the "multiplier effect" which can potentially be achieved through investment in teacher education. (More recently, attention has been given in a few African states to the possibility of increasing this multiplier effect by devoting attention to the preparation of teacher educators.) Since only a small percentage of African children will receive more than primary level formal education, and since the majority will continue to receive no more than the first few years of school, there is an ethical and practical imperative to go beyond lip service in the effort to provide sound, relevant and increasingly stimulating education for these children. As implied above, probably the most significant channels for assistance to the education of the vast majority of school children in the developing African nations is through (a) the education of teachers (including headmasters) and (b) improved curricula designed for primary schools, including preparation and provision of the classroom instructional materials, teachers guides and background materials for teachers which will give these curricula some chance of making a difference. Radical improvements are most likely when attention is given to both of these leverage points simultaneously.[4]

Limitations and Constraints

Education, with its fundamental objective of producing learning and behavioral change, lies at the very heart of what humans really are, what they might hopefully become. Unfortunately, it does not lend itself to easy simplification, acceleration or even alteration. No matter how deep and threatening a particular crisis may be, and no matter how urgent the demand for rapid, remedial action, education, by nature, does not respond effectively to crash programs and solve-it-in-a-hurry schemes. Education is an

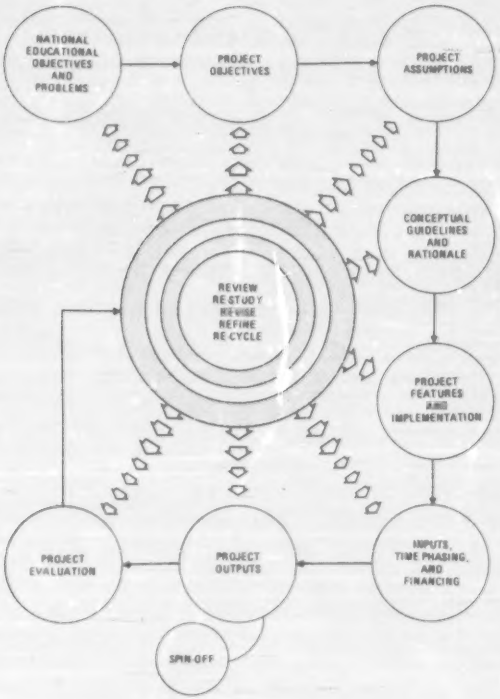
investment in time; pay-off is not for today, but for tomorrow. The design of the multi-dimensional approach described in this proposal, therefore, is not nice, neat and easy. However, limitations and constraints are required, especially at the start of a new project, to facilitate its management, to encourage initial confidence and success and to insure that all available resources are directed in a coordinated fashion to clearly defined but limited objectives. These limitations and constraints follow:

(1) The major target is *the elementary school* (not the secondary school or higher education) although adult and non-formal educational approaches will be included.
(2) The major thrust is *teacher education* (not higher education or vast participant training programs), including improved supervision and administration, as the fastest, most economical and most effective avenue for upgrading the quality of elementary education.
(3) The concentration is on *rural* (not urban) *education* although it is quite likely that many of the findings and developments will have relevance to the urban sector.
(4) The initial scope is a *pilot* (not national) *effort* involving a limited number of institutions and people and a manageable geographic area.
(5) The operation is *phased* (not a "one shot," "all-at-a-time" undertaking) with inputs of professional personnel and materials synchronized with such factors as advanced administrative arrangements, priorities of objectives, preparatory research and the orderly assimilation of new personnel and materials into the local situation and culture.

Broad-Brush Time Picture

The project, which is planned as a ten-year effort, will get underway with a limited number of Thai educational leaders and planners supported by a cadre of non-Thai specialists. Both the Thai and non-Thai components will grow numerically after the initial planning and research period, hitting a peak professional load during the second year. The phase-out of non-Thai personnel will begin gradually during the eighth year. By the end of the tenth year, it is envisioned that Thailand will have developed a viable indigenous regional educational center capable of administering to the multiple and varied needs of rural society. As the project grows and activities expand, continuous evaluation will be called for to assess progress and to make necessary program modifications and revisions. Undoubtedly, there will be the spin-off of new and potentially productive ideas. In order to capitalize on the best of such spin-off, project policies, contractual documents and administration will have to be imaginative and reasonably open and flexible (see Schematic A).[5]

A. PROJECT SCHEMATIC: A DIRECTIONAL MODEL



Footnotes

[1] Edgar Faure, *et al. Learning to Be: The World of Education Today and Tomorrow.* Paris: UNESCO, 1972, p. 189.

Faure and his colleagues recommend that, "Artificial or outmoded barriers between different educational disciplines, courses and levels and between formal and non-formal education should be abolished; recurrent education should be gradually introduced and made available in the first place to certain categories of the active population."

[2] *Ibid*, p. 175.

Faure and his colleagues suggest that, "New educational strategies must proceed from an overall vision of educational systems and resources according to their capacity to meet the needs of societies in continual change . . . Under no circumstances should strategies be bound by the confines of one single medium, one form of institution of one so-called 'systemic structure'."

[3] *Ibid.*

In their concluding remarks regarding the role and function of educational strategies, Faure notes that, "Today, it is no longer desirable to undertake educational reforms in piecemeal fashion, without a concept of the totality of the goals and modes of the educational process. To find out how to reshape its component parts, one must have a vision of the whole."

[4] John W. Hanson. *Enhancing the Contribution of Formal Education in Africa: Primary Schools, Secondary Schools and Teacher Training Institutions.* Washington, D.C.: Overseas Liaison Committee, American Council on Education, 1971, p. 17.

[5] A diagrammatic overview of the total project is presented to facilitate study and analysis, in broad outline, or project rationale, structure and direction.

Appendix I

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